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THE CONTROL OF COMMUNICABLE DISEASES

Report of a Committee of the American Public Health Association

In October 1916 a committee of the Health Officers' Section of the American Public Health Association was appointed to prepare standard regulations for the administrative control of the communicable diseases for which notification is usually required by State and municipal health authorities throughout the United States. The report of this committee was published in Public Health Reports, volume 32, no. 41, October 12, 1917.

This report was revised during 1926 by the successor of the original committee, to reconcile it with advances in the medical sciences in the previous 10 years. The revised report, approved by the American Public Health Association on October 14, 1926, and officially approved by the United States Public Health Service, was published in the Public Health Reports, volume 41, no. 51, December 17, 1926.

The general form of presentation and much of the matter of the 1926 revision was used in the Report of the Committee on Communicable Disease Control of the White House Conference, published in 1931.

The present revision, necessitated by increase in medical knowledge and experience, has been made by the Subcommittee on Communicable Disease Control, of the Committee on Research and Standards of the American Public Health Association, and it has been officially approved by the United States Public Health Service.

The terms used are first defined. Each disease is briefly described with regard to its clinical and laboratory recognition, the etiological agent, the source of infection, the mode of transmission, the incubation period, the period of communicability, susceptibility and immunity, and prevalence.

Following this are offered methods of control—first, those affecting the individual, contacts, and immediate environment, and second, general and specific measures bearing upon the control or prevention of the disease in question.

Inasmuch as the laws under which various boards and departments of health operate require differences in the legal phraseology of rules, regulations, or sections of sanitary codes dealing with the control of

communicable diseases, the committee has refrained from preparing formal regulations under each disease. As the report is at present submitted, any health officer, board of health, or legislative body having the power to make rules or regulations, or to enact sections of sanitary codes dealing with the control of communicable diseases can, by reference to the description of the disease and recommendations for methods of control herewith proposed, prepare the necessary text upon which the educational and administrative acts of the health officer will be based.

The present committee is indebted, as its predecessors have been, for expert opinion and critical comment upon its provisional text, to many physicians and others, both within and without the Association, and acknowledgment of their contributions to the accuracy and completeness of the report in its present form is herewith gratefully expressed.

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Lists of Diseases

A

List of communicable diseases for which notification is usually required in the States and cities of the United States

Actinomycosis.	Pneumonia, acute lobar.
Ancylostomiasis (hookworm disease).	Polio myelitis.
Anthrax.	Psittacosis.
Chicken pox (varicella).	Puerperal infection (puerperal septicemia).
Cholera.	Rabies.
Conjunctivitis, acute infectious.	Rocky Mountain spotted (or tick) fever.
Dengue.	Scarlet fever (scarlatina).
Diphtheria.	Septic sore throat (streptococcus throat infection).
Dysentery, amebic (amebiasis).	Smallpox (variola).
Dysentery, bacillary.	Syphilis.
Encephalitis, infectious, lethargic and nonlethargic.	Tetanus.
Favus.	Trachoma.
German measles (rubella).	Trichinosis.
Glanders (farcy).	Tuberculosis, pulmonary.
Gonorrhea.	Tuberculosis, other than pulmonary.
Influenza.	Tularaemia.
Leprosy.	Typhoid fever.
Malaria.	Typhus fever.
Measles (rubeola).	Undulant fever (brucellosis).
Meningococcus meningitis.	Whooping cough.
Mumps (parotitis).	Yellow fever.
Paratyphoid fever.	
Plague, bubonic, septicemic, pneumonic.	

Supplementary Lists

B

Communicable diseases or infestations occurring in the United States and Insular Possessions, but for which notification to the health authorities is not everywhere required

Ascariasis.	Pediculosis.
Common cold.	Rat-bite fever (sodoku).
Coccidioidal granuloma.	Relapsing fever.
Filariasis.	Ringworm.
Ictero-hemorrhagic jaundice (Weil's disease).	Scabies.
Impetigo contagiosa.	Schistosomiasis.
Lymphogranuloma venereum (inguinale) and climatic bubo. ¹	Vincent's infection (angina, stomatitis).
	Yaws.

C

Diseases of concern to health officers because of their group or epidemic occurrence and the practicability of their prevention, and for these reasons often included among those notifiable to the health authority, but not to be considered communicable in the usual sense of the term

Botulism.	Pellagra.
Food infections and poisonings.	

The committee adopted the following definitions of terms:

1. *Carrier*.—A person who, without symptoms of a communicable disease, harbors and disseminates the specific micro-organisms. As distinct from a carrier, the term "infected person" is used to mean a person in whose tissues the etiological agent of a communicable disease is lodged and produces symptoms.

2. *Cleaning*.—This term signifies the removal by scrubbing and washing, as with hot water, soap, and washing soda, of organic matter on which and in which bacteria may find favorable conditions for prolonging life and virulence; also the removal by the same means of bacteria adherent to surfaces.

3. *Contact*.—A "contact" is any person or animal known to have been sufficiently near an infected person or animal to have been presumably exposed to transfer of infectious material directly, or by articles freshly soiled with such material.

4. *Delousing*.—By delousing is meant the process by which a person and his personal apparel are treated so that neither the adults nor the eggs of *Pediculus corporis* or *Pediculus capitis* survive.

5. *Disinfection*.—By this is meant the destroying of the vitality of pathogenic micro-organisms by chemical or physical means.

When the word "concurrent" is used as qualifying disinfection, it indicates the application of disinfection immediately after the discharge of infectious material from the body of an infected person, or after the soiling of articles with such infectious discharges, all personal contacts with such discharges or articles being prevented prior to their disinfection.

When the word "terminal" is used as qualifying disinfection, it indicates the process of rendering the personal clothing and immediate physical environment of the patient free from the possibility of conveying the infection to others, at the time when the patient is no longer a source of infection.

6. *Disinfesting*.—By disinfesting is meant any process, such as the use of dry or moist heat, gaseous agents, poisoned food, trapping, etc., by which insects and animals known to be capable of conveying or transmitting infection may be destroyed.

7. *Education in personal cleanliness*.—This phrase is intended to include all the various means available to impress upon all members of the community, young and old, and especially when communicable disease is prevalent or during epidemics, by spoken and printed word, and by illustration and suggestion, the necessity of:

- (1) Keeping the body clean by sufficiently frequent soap and water baths.
- (2) Washing hands in soap and water after voiding bowels or bladder and always before eating.

¹ This title does not include granuloma venereum (inguinale), which is a different clinical condition.

(3) Keeping hands and unclean articles, or articles which have been used for toilet purposes by others, away from mouth, nose, eyes, ears, and genitalia.

(4) Avoiding the use of common or unclean eating, drinking, or toilet articles of any kind, such as towels, handkerchiefs, hairbrushes, drinking cups, pipes, etc.

(5) Avoiding close exposure of persons to spray from the nose and mouth, as in coughing, sneezing, laughing, or talking.

8. *Fumigation*.—By fumigation is meant a process by which the destruction of insects, as mosquitoes and body lice, and animals, as rats, is accomplished by the employment of gaseous agents.

9. *Isolation*.²—By isolation is meant the separating of persons suffering from a communicable disease, or carriers of the infecting micro-organism, from other persons, in such places and under such conditions as will prevent the direct or indirect conveyance of the infectious agent to susceptible persons.

10. *Quarantine*.²—By quarantine is meant the limitation of freedom of movement of persons or animals who have been exposed to communicable disease for a period of time equal to the longest usual incubation period of the disease to which they have been exposed.

It is still considered necessary to require strict isolation of the patient for the period of communicability, and quarantine or immunization of contacts in certain diseases, notably smallpox. However, in some other diseases, such as poliomyelitis and encephalitis, isolation of the patient has but little apparent effect in limiting the spread of the disease, and the period of communicability is not known with reasonable accuracy in any given case.

Case-to-case infection is relatively infrequent in these latter two diseases; and yet the patient must be regarded as a potential source of infection and suitable precautions must be taken, even if these barriers to transmission of the disease are but partially effective. Uncertainty as to the exact duration of the period of communicability does not justify neglect of reasonable isolation measures but rather adds to our obligation to educate patients, the family, and the attending physician in the advantages to be had from separating the sick from the well, and in taking precautionary measures voluntarily when the presence of a communicable disease is suspected and before a diagnosis is established, after the official period of isolation is past, and generally during the epidemic prevalence of such diseases in the community.

The five specific objectives of personal cleanliness as defined above (7), if conscientiously attempted, will materially aid in reducing the amount and frequency of infection.

Isolation of a communicable disease from visitors is often of benefit to the patient as well as a protection to others; quiet, freedom from the excitement and fatigue of visits, and complete rest are important factors in the medical and nursing management of such patients and directly contribute to recovery.

11. *Renovation*.—By renovation is meant, in addition to cleansing, such treatment of the walls, floors, and ceilings of rooms or houses as may be necessary to place the premises in a satisfactory sanitary condition.

12. *Report of a disease*.—By report of a disease is meant the notification to the Health Department and, in the case of communicable disease in animals, also to the respective Department of Agriculture which has immediate jurisdiction, that a case of communicable disease exists or is suspected of existing in a specified person or animal at a given address.

13. *Susceptible*.—A "susceptible" is a person or animal who is not known to have become immune to the particular disease in question by natural or artificial process.

14. *Virus, filterable*.—The term "filterable virus" as defining the etiological agent of certain diseases is used in the sense of a causal agent differentiated from other kinds of infectious agents such as bacteria, protozoa, etc. Many of these filterable viruses can be grown *in vitro* in the presence of living susceptible cells, and such cultures will produce regularly typical diseases in animals and in man. The term "filterable virus" has a significance comparable to that of bacterium, spirochete, or protozoon. The term "filterable virus" is as definite a description of an etiological agent as is the statement that the typhoid bacillus causes typhoid fever. The idea conveyed by the statement that a filterable virus is the etiological

² In view of the various ambiguous and inaccurate uses to which the words "isolation" and "quarantine" are not infrequently put, it has seemed best to adopt arbitrarily the word "isolation" as describing the limitation put upon the movements of the known sick or "carrier" individual or animal, and the word "quarantine" as describing the limitations put upon exposed or "contact" individuals.

agent is that the cause of this disease is known, even though present knowledge does not permit further precision in distinguishing among filterable viruses except by reference to the name of the disease produced by each.

The items considered necessary for presentation by the committee with regard to each disease are the following:

1. Recognition of the disease; clinical criteria; laboratory verification.
2. Etiological agent.
3. Source of infection.
4. Mode of transmission.
5. Incubation period.
6. Period of communicability.
7. Susceptibility and immunity.
8. Prevalence.
9. Methods of control:
 - A. The infected individual, contacts, and environment.
 1. Recognition of the disease and reporting.
 2. Isolation.
 3. Concurrent disinfection.
 4. Terminal disinfection.
 5. Quarantine.
 6. Immunization.
 7. Investigation of source of infection.
 - B. General measures.
 - C. Epidemic measures (occasionally requiring separate mention).

Therapy, whether nonspecific or specific, is not considered to come within the scope of administrative control of communicable diseases, except in a few instances in which there is obligation or authority to provide materials and services for the treatment of infected individuals with the object of abbreviating the duration of the communicable stage of the disease. Wherever specific therapeutic products are best, or only, available through the facilities or funds of the Department of Health, the provision of these, as well as the provision of laboratory diagnostic aids, is a recognized function of the Department of Health in the interest of early, accurate, and effective treatment of infected persons.

Numerous products used in the treatment of, or for the development of immunity against, communicable disease are supplied by many State and city health departments from their own laboratories or by purchase from commercial sources, such as those used in diphtheria, smallpox, tetanus, rabies, meningococcus meningitis, syphilis, pneumonia of certain types, etc. Procedures of this type have not in general been listed in the present draft, since we interpret our topic as primarily the control of the spread of communicable diseases.

IMPORTANT MEASURES IN BOLD-FACED TYPE

Certain measures in the control of some diseases are of particular importance, on account either of their efficiency in preventing the disease or of the danger of its spread if they are neglected, and also on account of their proved practicability. These are emphasized in the text by being printed in **bold-faced type**.

Diseases in List A

Actinomycosis

1. *Recognition of the disease.*—A local or general, acute or chronic suppurative process combined with growth of connective tissue, and characterized by the presence in the lesions of vegetations or colonies of the specific micro-organism, identifiable by microscopic examination of discharges from the lesions.

2. *Etiological agent.*—*Actinomyces bovis*.
3. *Source of infection.*—The nasal and bowel discharges and the infected material from lesions in human and animal cases of the disease. Uncooked meat from infected animals may serve as a source of infection.
4. *Mode of transmission.*—Principally by grains, grasses, and other cattle fodder, and stable bedding contaminated by discharges from lesions of the disease, infecting abrasions or wounds of oral cavity or body surface. It is not probable that the disease is transmitted from man to man. It may be transmitted from animal to man, but only indirectly through infection of oral or skin wounds by contaminated materials.
5. *Incubation period.*—Undetermined and variable.
6. *Period of communicability.*—As long as open lesions remain, as proved by the presence of the infectious agent on microscopic or cultural tests.
7. *Susceptibility and immunity.*—Susceptibility in cattle and man is general. Acquired immunity does not follow occurrence of the disease in man, and artificial immunity is not practicable.
8. *Prevalence.*—Rare among humans. Most likely to be found among persons suspected of having pulmonary tuberculosis and among persons occupied with cattle.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, confirmed by microscopic examination of discharges from the lesions.
 2. Isolation: None, provided the patient is under adequate medical supervision.
 3. Concurrent disinfection: Of discharges from lesions and articles soiled therewith.
 4. Terminal disinfection: By thorough cleansing.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Should be sought in diseased cattle.
 - B. General measures:
 1. Avoidance of the practice of chewing straws, grains, or grasses, and observance of hygiene of oral cavity.
 2. Inspection of meat, with condemnation of carcasses or infected parts of carcasses of infected animals.
 3. Destruction of known animal sources of infection.

Ancylostomiasis (Hookworm Disease)

1. *Recognition of the disease.*—Light degrees of infestation may produce no striking clinical symptoms, although some degree of secondary anemia and slight interference with bodily and mental development may be noted. A medium degree of infestation shows marked anemia and, if before puberty, definite physical and mental retardation, and a dry dirty-yellow skin. Severe infestations may show petechiae and atrophy of the skin, edema, general or of dependent parts, extreme anemia, anxious, stupid expression, prominent abdomen. The diagnosis is definitely established by finding ancylostoma ova in the stools, by smear or flotation methods.
2. *Etiological agent.*—In the United States, *Necator americanus*, rarely *Ancylostoma duodenale*.
3. *Source of infestation.*—Feces of infested persons. Infestation generally takes place through the skin, occasionally by the mouth.
4. *Mode of transmission.*—The larval forms pierce the skin, usually of the foot, and, passing through the lymphatics to the vena cava and the right heart, thence in the blood stream to the lungs, they pierce the capillary walls and pass into the alveoli. They then pass up the bronchi and trachea to the throat, whence they are swallowed and finally lodge in the small intestine. Also by drinking water containing larvae, by eating soiled food, by hand to mouth transmission of the eggs or larvae from objects soiled with infested discharges. The chief reservoir of infectious material is *contaminated soil*.
5. *Incubation period.*—No incubation period occurs comparable to that observed in bacterial and virus infections. Onset of symptoms varies widely in time, according to the intensity of the infestation, from 2 to 3 weeks in massive infestations (commonly 7 to 10 weeks), to many months or even years where infestation or reinfestation is by small numbers of worms. The free living

form may exist in the soil under favorable conditions for several weeks. Eggs are found in the stools in about 4 to 6 weeks after the larvae penetrate the skin.

6. *Period of communicability*.—As long as the parasite or its ova are found in the bowel discharges of an infested individual. Contaminated soil may remain infective for 5 months in the absence of freezing. An individual can communicate the disease to others only by the indirect method of pollution of the soil with his feces. As long as mature female worms are in the intestine, eggs, if deposited in the feces in warm moist soil, become sources of infestation, especially where the soil is sandy.
7. *Susceptibility and immunity*.—Susceptibility to infestation is universal, although among adults, especially Negroes, infestations are likely to be less heavy than among children and in the white races. Immunity does not develop after infestation.
8. *Prevalence*.—Endemic widely throughout those climatic belts where frost does not last more than 6 weeks in the year, and particularly where the soil is sandy. In rural areas of the Southern States of the United States, particularly among white children of school age; less commonly and less severely among Negro children. Damp summer weather increases the prevalence of infestation. During the past two decades there has been some decrease in prevalence and severity of the disease in continental United States. Prevalence is high in Puerto Rico.
9. *Methods of control*:
 - A. The infested individual, contacts, and environment:
 1. Recognition of the disease and reporting: Microscopic examination of bowel discharges.
 2. Isolation: None.
 3. Concurrent disinfection: Sanitary disposal of bowel discharges to prevent contamination of soil and water.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infestation: Each case and carrier is a potential or actual spreader of the disease and should be brought under treatment and his family contacts examined.
 8. Treatment: Appropriate treatment of infested persons with carbon tetrachloride, oil of chenopodium, or tetra-chlor-ethylene, to rid the intestinal canal of the parasite and its ova.
 - B. General measures:
 1. Education as to dangers of soil pollution and methods of prevention.
 2. Prevention of soil pollution by installation of sanitary disposal system for human discharges, especially sanitary privies in rural areas.
 3. Personal prophylaxis by cleanliness and the wearing of shoes.

Anthrax

1. *Recognition of the disease*.—Two forms occur—external due to direct inoculation through a cut or abrasion, and internal caused by ingestion or inhalation of the bacilli or their spores. Following the initial papule and vesicle at the external site of inoculation, an eschar develops and then hard edematous swelling of deeper and adjacent tissues. Freedom from pain is usual. Constitutional symptoms do not parallel the gravity of the lesions. Confirmation by microscopic examination of the lesions and discharges for *B. anthracis*.
2. *Etiological agent*.—Anthrax bacillus, *Bacillus anthracis*.
3. *Source of infection*.—Hair, hides, flesh, and feces of infected animals.
4. *Mode of transmission*.—Inoculation as by accidental wound or scratch, inhalation of spores of the infectious agent, ingestion of insufficiently cooked meat, and mechanically by flies and mosquitoes.
5. *Incubation period*.—Within 7 days, usually less than 4.
6. *Period of communicability*.—During the febrile stage of the disease and until lesions have ceased discharging. Infected hair and hides of infected animals may communicate the disease many months after slaughter of the animal and after drying of hide, fur, or hair, unless disinfected.

7. *Susceptibility and immunity.*—Man is not as susceptible as the domestic animals, especially the herbivora, but more so than the carnivora. Immunity may develop following an attack of the disease. Artificial active immunity, widely used for domestic animals, is not appropriate for humans.
8. *Prevalence.*—Rare and sporadic in humans and associated only with the occurrence of the disease in cattle, or with handling hide and hair products from infected cattle. In epidemic form in cattle in various foreign countries from time to time.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical and bacteriological.
 2. Isolation of the infected individual until the lesions have healed.
 3. Concurrent disinfection of the discharges from lesions and articles soiled therewith: Spores can be killed only by special measures such as steam under pressure or burning.
 4. Terminal disinfection: Thorough cleaning.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Search for the product of the infected animal, and trace to origin for discovery of disease in sporadic or epidemic form in domestic animals, where it will be found in all but rare instances.
 - B. General measures:
 1. **Animals ill with disease presumably anthrax should be isolated immediately in the care of a veterinary surgeon. Animals proved to have the disease should be killed and promptly destroyed, preferably by incineration.**
 2. Immunization of exposed animals under direction of Federal or State Department of Agriculture.
 3. Post-mortem examination should be made only by a veterinary surgeon or in the presence of one.
 4. Milk from an infected animal should not be used during the febrile period.
 5. Control and disinfection of effluents and trade wastes and of areas of land polluted by such effluents and wastes from factories or premises, where spore-infected hides or other infected hide and hair products are known to have been worked up into manufactured articles.
 6. Every shipment of raw hides, hair, or bristles from sources which are not known to be free from anthrax infection should be examined by an expert bacteriologist.
 7. A physician should be constantly employed by every company handling raw hides, or such companies should operate under the direct supervision of a medical representative of the health department.
 8. Every employee handling raw hides, hair, or bristles who has an abrasion of the skin should immediately report to a physician.
 9. Special instruction should be given to all employees handling raw hides in regard to the necessity of personal cleanliness.
 10. Tanneries and woolen mills should be provided with proper ventilating apparatus so that dust is promptly removed before reaching the respiratory tract of human beings.
 11. Disinfection of hair, wool, and bristles of animals originating in known infected centers before they are used or assorted.
 12. The sale of hides from an animal infected with anthrax should be prohibited. A violation of this regulation should be immediately reported to the appropriate State commissioner of agriculture by telegram, stating the time, place, and purchaser to whom the hide was sold. The report should also be sent to the person purchasing the hide. Carcasses should be disposed of under the supervision of the appropriate department of agriculture. The inspection and disinfection of imported hides are under the supervision of the United States Bureau of Animal Industry. In the event that infection is introduced, the State agricultural authorities have jurisdiction over infected animals and the local or State health authorities have jurisdiction over infected persons.

Chicken Pox

1. *Recognition of the disease.*—Clinical picture is of an acute disease with a slight fever, mild constitutional symptoms, and an eruption, maculopapular for a few hours, often not observed, vesicular lasting 3 to 4 days leaving a granular scab. Vesicles tend to be as abundant on the covered as on the exposed parts of the body, and frequently appear in different stages on the same region of the body.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—The infectious agent is presumably present in the lesions of the skin and of the mucous membranes; the latter, appearing early and rupturing as soon as they appear, render the disease communicable early, that is, before the exanthem is in evidence.
4. *Mode of transmission.*—Directly from person to person; indirectly through articles freshly soiled by discharges from an infected person.
5. *Incubation period.*—Two to three weeks.
6. *Period of communicability.*—Probably not more than 6 days after the appearance of the first crop of vesicles, and certainly not more than 10 days. Especially communicable in the early stages of the eruption. One of the most readily communicable of diseases.
7. *Susceptibility and immunity.*—Susceptibility is practically universal among those who have not previously had the disease. An attack confers permanent immunity, with rare exceptions. Passive temporary immunity may be conferred by the use of convalescent serum from those recently recovered.
8. *Prevalence.*—Universal. Probably 90 percent of persons have had the disease by the time they are 15 years of age. Not uncommon in early infancy. Winter and spring are seasons of greatest prevalence in North America.
9. *Methods of control:*
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: The chief public health importance of this disease is that cases thought to be chicken pox in persons over 15 years of age, or at any age during an epidemic of smallpox, are to be investigated to eliminate the possibility of their being smallpox.
 2. Isolation: Exclusion from school, and avoidance of contact with nonimmune persons should be made effective.
 3. Concurrent disinfection: Articles soiled by discharges from lesions.
 4. Terminal disinfection: Thorough cleaning.
 5. Quarantine: None.
 6. Immunization: Passive immunization of susceptible children may be of value in institutions when exposure is feared, or under exceptional conditions in individual cases.
 7. Investigation of source of infection: Of no importance unless in persons over 15 years of age or when smallpox is suspected or is locally prevalent.
 - B. General measures: None.

Cholera

1. *Recognition of the disease.*—In a few mild cases, diarrhea may be the chief or only symptom. In the typical case, rice-water stools, vomiting, and general symptoms of dehydration occur with thirst, pain, and coma. The cholera vibrios are found in the stools.
2. *Etiological agent.*—Cholera vibrio, *Vibrio comma*.
3. *Source of infection.*—Bowel discharges and vomitus of infected persons, and feces of convalescent or healthy carriers. Ten percent of contacts may be found to be carriers.
4. *Mode of transmission.*—By food and water polluted by infectious agent; by contact with infected persons, carriers, or articles freshly soiled by their discharges; by flies.
5. *Incubation period.*—One to five, usually three, days, occasionally longer if the healthy carrier stage, before development of symptoms, is included.
6. *Period of communicability.*—Usually 7 to 14 days or longer and until the infectious organism is absent from the bowel discharges. A high degree of communicability is usual.

7. *Susceptibility and immunity.*—Susceptibility is general, although natural immunity appears to exist to a limited degree. Acquired immunity is uncertain. Active artificial immunity for about 1 year may be obtained by vaccines.
8. *Prevalence.*—Rare in North America. Appears in epidemic form frequently in the Philippines. Does not occur sporadically, except as an isolated case is discovered in the course of maritime quarantine enforcement.

9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms confirmed by bacteriological examination of stools.
2. Isolation of patient in hospital or screened room during communicable period.
3. Concurrent disinfection: Prompt and thorough disinfection of the stools and vomited matter. Articles used by and in connection with the patient must be disinfected. Food left by the patient should be burned.
4. Terminal disinfection: The room in which a sick patient was isolated should be thoroughly cleaned.
5. Quarantine: Contacts for 5 days from last exposure, or longer if stools are found to contain the cholera vibrio.
6. Immunization: Prophylactic immunization of contacts is useful and advisable.
7. Investigation of source of infection: Search for contaminated food and water as common origin of groups of cases, and for unreported cases and for carriers.

B. General measures:

1. Rigid personal prophylaxis of attendants by scrupulous cleanliness, disinfection of hands each time after handling patient or touching articles contaminated by dejecta, the avoidance of eating or drinking anything in the room of the patient, and the prohibition of those attendant on the sick from entering the kitchen.
2. The bacteriological examination of the stools of all contacts to determine carriers. Isolation of carriers.
3. Water should be boiled, if used for drinking or toilet purposes, or if used in washing dishes or food containers, unless the water supply is adequately protected against contamination or is so treated, as by chlorination, that the cholera vibrio cannot survive in it.
4. Careful supervision of food and drink: Where cholera is prevalent, only cooked foods should be used. Food and drink after cooking or boiling should be protected against contamination, as by flies and human handling.

- C. Epidemic measures: Inspection service for early detection and isolation of cases; examination of persons exposed in infected centers for detection of carriers, with isolation or control of carriers; cleaning of rooms occupied by the sick, and the detention, in suitable camps for 5 days, of those desirous of leaving for another locality. Those so detained should be examined for detection of carriers.

Conjunctivitis, Acute Infectious (Not Including Trachoma)

(This title to replace the terms Gonorrheal ophthalmia, Ophthalmia neonatorum, and Babies' sore eyes.)

1. *Recognition of the disease.*—Acute redness and swelling of the conjunctiva of one eye or of both eyes, with muco-purulent and purulent discharge in which the infecting micro-organism is identifiable by microscopic and cultural methods.
2. *Etiological agent.*—The gonococcus or some member of a group of pyogenic organisms, including the hemoglobinophilic bacilli.
3. *Source of infection.*—Discharges from conjunctivae, or adnexa, or genital mucous membranes of infected persons.
4. *Mode of transmission.*—Contact with an infected person or with articles freshly soiled with discharges of such person.
5. *Incubation period.*—Irregular, but usually 36 to 48 hours.
6. *Period of communicability.*—During the course of the disease and until the discharges from the infected mucous membranes have ceased. Readily communicable.

7. *Susceptibility and immunity.*—Susceptibility is general, particularly in the newborn. Acquired immunity does not follow an attack of the disease, and artificial immunity is not practicable.
8. *Prevalence.*—Occurrence varies widely according to the observance or neglect of prophylactic use of a solution of silver nitrate or equivalent preparation in the eyes of the newborn by the attendant at the delivery. An infrequent complication in the present-day care of the newborn.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease: Clinical symptoms, confirmed where possible by bacteriological examination.
 2. Isolation: None, provided the patient is under adequate medical supervision.
 3. Concurrent disinfection: Disinfection of conjunctival discharges and articles soiled therewith.
 4. Terminal disinfection: Thorough cleaning.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection—among persons recently in contact with the patient: The disease in the newborn is almost always due to infection from the genital tract of the mother.
 - B. General measures:
 1. Use of silver nitrate or some similar solution in the eyes of the newborn; antepartum treatment of mother if gonorrhea is suspected.
 2. Enforcement of regulations forbidding the use of common towels and toilet articles. Education as to personal cleanliness.
 3. Carrying out of the measures indicated in methods of control for gonorrhea.

Dengue

1. *Recognition of the disease.*—An acute febrile infection of sharp onset with two paroxysms, of short duration. Intense headache, joint and muscle pains, and irregular eruption are usual.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—The blood of infected persons, during first 3 days of the disease.
4. *Mode of transmission.*—By the bite of infected mosquitoes, *Aedes aegypti*, from 11 days after biting a patient during the first 5 days of the disease, until the death of the mosquito.
5. *Incubation period.*—Three to 10 days.
6. *Period of communicability.*—From the day before onset to the fifth day of the disease. Degree of communicability depends on prevalence of infected humans and abundance of *Aedes aegypti* mosquitoes.
7. *Susceptibility and immunity.*—Susceptibility apparently universal. Acquired immunity may last a few months to a year. After several attacks an almost complete immunity is developed.
8. *Prevalence.*—Occurs only where the *Aedes aegypti* mosquito exists, mainly in tropics and subtropics. When occurring in epidemic form in the United States, begins usually in southernmost States, moving north until the range of the vector mosquito is stopped by climate or the season of the year. Common, and in frequent epidemics, in the Philippines. Occurs equally among males and females; less among indigenous than among visiting or transient whites where the disease commonly occurs.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting.
 2. Isolation: The patient must be kept in a screened room.
 3. Concurrent disinfection: None.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Search for unreported or undiagnosed cases and for the *Aedes aegypti* mosquito and its breeding places.
 - B. General measures: Measures directed toward elimination of mosquitoes (*Aedes aegypti*). Screening of rooms.

Diphtheria

1. *Recognition of the disease.*—An acute febrile infection, generally of the air passages, especially of tonsils, throat, and nose, marked by a patch or patches of dirty white and grayish membrane, from which cultures of the diphtheria bacillus may be obtained. Cases of diphtheritic infection in infants are often missed because of the lack of definite local symptoms.
2. *Etiological agent.*—Diphtheria bacillus, *Corynebacterium diphtheriae*, the Klebs-Loeffler bacillus.
3. *Source of infection.*—Discharges from diphtheritic lesions of nose, throat, conjunctiva, vagina, and wound surfaces. Secretions from the nose and throat of carriers of the bacillus.
4. *Mode of transmission.*—Directly by personal contact, indirectly by articles freshly soiled with discharges, or through infected milk or milk products.
5. *Incubation period.*—Usually 2 to 5 days, occasionally longer if the carrier state precedes the development of clinical symptoms.
6. *Period of communicability.*—Variable, until virulent bacilli have disappeared from the secretions and the lesions. Usually 2 weeks or less, seldom over 4 weeks. In exceptional cases virulent bacilli remain in the throat and discharges from 2 to 6 months.
7. *Susceptibility and immunity.*—Infants born of mothers with an established immunity are relatively immune for the first 6 months of life. By the ninth month of life this passive congenital immunity has been lost in a high percentage of infants. Subsequently children and adults develop immunity apparently in approximate proportion to their contact with associates who carry the diphtheria bacillus with or without exposure to persons with recognized attacks of the disease. It is usual to find about half of the children of school age and three-quarters of adults in large cities immune. Such accidental immunity is less frequent among rural and small-town populations. Passive temporary immunity (10 days to 3 weeks) and active immunity of commonly permanent duration can be developed artificially. Recovery from attack of the disease, especially if with the aid of therapeutic diphtheria antitoxin, is not necessarily followed by active immunity.
8. *Prevalence.*—Endemic and epidemic. Two-thirds or more of the cases are in children under 10 years of age and two-thirds or more of the deaths occur in children under 5 years of age. More common in temperate zone than elsewhere, and in fall and winter months. Local increased prevalence may occur in irregular cycles of 4- to 8-year intervals. Reduction in incidence, death rate, and case fatality rate has been progressive and marked in the past 30 years.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting. By clinical symptoms with confirmation by bacteriological examination of discharges.
 2. **Isolation:** Until 2 cultures from the throat and 2 from the nose, taken not less than 24 hours apart, fail to show the presence of diphtheria bacilli. Isolation may be terminated if the microorganism reported as morphologically "positive", although persistently present, proves to be an avirulent form. Where termination by culture is impracticable, cases may be terminated with fair safety as a rule 16 days after onset of the disease. A virulence test should be made in any case where positive throat cultures are reported 3 weeks or longer after onset of the disease.
 3. **Concurrent disinfection of all articles which have been in contact with the patient, and all articles soiled by discharges of the patient.**
 4. **Terminal disinfection:** At the end of the illness, thorough airing and sunning of the sick room, with cleaning or renovation.
 5. **Quarantine:** All intimate contacts until shown by bacteriological examination not to be carriers.
 6. **Immunization:** Passive immunization with antitoxin is rarely necessary for exposed persons over 5 years of age, for whose protection daily examination by a physician or nurse suffices. Infants and young children exposed to diphtheria in the family should receive a prophylactic dose of antitoxin without prior Schick testing, unless they are already known to the physician to be immune.
 7. **Investigation of source of infection:** In unreported cases, in carriers, and milk.

B. General measures:

1. **Active immunization of all children, without prior Schick testing, at the age of 6 months, with a diphtheria toxoid.** This same procedure should be applied to all children at or below 6 years of age if immunization has been neglected in infancy.¹
2. Older children, and adults especially exposed, including teachers, nurses, and physicians found to be Schick-positive should be actively immunized. In order to minimize local and constitutional reactions in members of these groups, it is desirable to carry out a preliminary "toxoid reaction test", nonreactors to receive toxoid, and reactors toxin-antitoxin (goat) in 2 or 3 inoculations or suitably diluted toxoid.
3. Pasteurization of milk supply.
4. Educational measures to inform the public, and particularly the parents of little children, of the advantages of toxoid immunization in infancy.

Dysentery, Amebic (Amebiasis)

1. **Recognition of the disease.**—Insidious and undetermined onset characterizes mild acute cases, with digestive disturbance, anorexia, diarrhea or constipation, and usually little abdominal discomfort. Severe acute cases following massive infection may simulate acute appendicitis, or other acute surgical abdominal condition with high temperature and severe prostration. The subacute and chronic forms of the disease vary widely in the extent of local and constitutional symptoms. There may or may not be diarrhea or constipation; or these may alternate in the same patient.
2. **Etiological agent.**—*Endamoeba histolytica*.
3. **Source of infection.**—The bowel discharges of infected persons and of carriers.
4. **Mode of transmission.**—By drinking contaminated water and by eating infected foods, especially those that are commonly served cold and moist, and hand-to-mouth transfer of infected material; from moist objects soiled with discharges of an infected individual; by flies.
5. **Incubation period.**—From 2 days in severe infections to several months in subacute and chronic cases; commonly 3 to 4 weeks.
6. **Period of communicability.**—During course of infection and until repeated microscopic examination of stools shows absence of the *Endamoeba histolytica* (either trophozoites or cysts). Direct transmission unusual.
7. **Susceptibility and immunity.**—Susceptibility to infestation is general; immunity uncertain; no artificial immunity.
8. **Prevalence.**—Not a common disease clinically in continental North America. Epidemic outbreaks are rare. It is estimated that almost 5 percent of the population are carriers of cysts.
9. **Methods of control:**

A. The infected individual, contacts and environment:

1. Recognition of the disease and reporting: Clinical symptoms confirmed by microscopic examination of stools.
2. Isolation: None.
3. Concurrent disinfection: Sanitary disposal of the bowel discharges. Hand washing after use of toilet.
4. Terminal disinfection: Cleaning.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Microscopic examination of stools of inmates of the household, or of work associates of the infected person, and of other suspected contacts, should be supplemented by search for direct contamination of water and foods by human feces.

B. General measures:

1. **Sanitary disposal of human feces.**
2. **Protection of potable water supplies against fecal contamination, and boiling drinking water where necessary.** Chlorination of water supplies as generally used has been found inadequate for the destruction of cysts.

¹ Active immunization by any method should not be presumed to be successful without routine Schick testing or testing a representative sample of those inoculated 3 months after such procedure.

3. Supervision of the general cleanliness, of the personal health and sanitary practices of persons preparing and serving food in public eating places, especially moist foods eaten raw.
 4. Education in personal cleanliness, particularly washing hands with soap and water after evacuation of the bowels.
 5. Control of fly breeding and protection of foods against fly contamination by screening.
 6. **It is of importance that all cross connections between potable and polluted water supplies be forbidden. Systematic inspection should be made to discover them, and the supply should be disconnected until such cross connections have been eliminated.**
 7. Instruction of convalescent and chronic carriers in personal hygiene, particularly as to sanitary disposal of fecal waste, and hand washing after use of toilet.
- C. Epidemic measures: In case of epidemics due to relatively massive doses of infectious material, active measures should be employed to discover the source of infection, and to warn the public and the medical profession of the early and characteristic symptoms, and of the serious immediate and remote results of such infection.

Dysentery, Bacillary

1. *Recognition of the disease.*—The typical case exhibits an acute onset, fever, tenesmus, with frequent stools containing blood and mucus. One or more of a large number of possible types of the dysentery bacillus can usually be found in the stools in the first 2 days of the disease.
2. *Etiological agent.*—Dysentery bacillus, *Shigella dysenteriae*, *Shigella paradyserteriae*.
3. *Source of infection.*—The bowel discharges of infected persons.
4. *Mode of transmission.*—By eating infected foods, and by hand-to-mouth transfer of infected material; by flies; from objects soiled with discharges of an infected individual or of a carrier; by drinking contaminated water. Polluted milk and water are less common vehicles of this disease than is the case with typhoid fever.
5. *Incubation period.*—2 to 7 days.
6. *Period of communicability.*—During the febrile period of the disease and until the micro-organism is absent from the bowel discharges, sometimes as long as 4 weeks.
7. *Susceptibility and immunity.*—Susceptibility is general among children, but less so, and the disease less severe, in adults. A relative and not permanent immunity follows recovery from the disease.
8. *Prevalence.*—Endemic, epidemic, and sporadic, but shares with other enteric infections in striking and progressive reduction wherever water supplies are rendered safe, sewage is disposed of in a sanitary manner, milk is pasteurized, and infant hygiene is of a good order. Most common in the summer months and in subtropical and tropical areas.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting:⁴ Clinical symptoms confirmed by serological and bacteriological tests.
 2. Isolation: Infected individuals during the communicable period of the disease, particularly rigid personal precautions by attendants.
 3. Concurrent disinfection: Bowel discharges.
 4. Terminal disinfection: Cleaning.
 5. Quarantine: None.
 6. Immunization: Vaccines may give some immunity. Owing to severe reactions their use is not recommended, nor should vaccination be made compulsory except under extreme emergency.
 7. Investigation of source of infection: Search for a common source in contaminated food and water, and for carriers particularly among food handlers, should be undertaken as in the case of typhoid fever.

⁴ Groups of cases of acute diarrheal disorder should always be reported to the health officer at once, even in the absence of exact determination of the nature and origin of the disease.

B. General measures:

1. **Protection and purification of public water supplies, together with prevention of subsequent contamination.**
2. **Pasteurization of public milk supplies; use of boiled milk for infant feeding.**
3. **Supervision of preparation and handling of other foods, particularly those which are moist and eaten raw.**
4. **Hand washing, by food handlers in particular, following use of toilet.**
5. **Prevention of fly-breeding; screening.**
6. **Sanitary disposal of human excreta.**
7. **Persons known to be infected, and their attendants, should be excluded from handling food for public consumption, and from handling the family food supply if possible.**
8. **The exercise of rigid precautions in known cases of bacillary dysentery is requisite but is inadequate as a safeguard against the ever-present risk of infection from concealed sources. Reduction of high infant mortality rates is dependent upon prevention of diarrhea and enteritis. Infant hygiene, including breast feeding, scrupulous cleanliness at all times in the preparation and handling of food for children, and continuous attention to diet in order to avoid minor digestive disturbances that may lower resistance to the infection will do much toward accomplishing this aim. As a precautionary measure, all cases of infantile diarrhea should be regarded as bacillary dysentery. Prevention of epidemics of bacillary dysentery by guarding against massive dissemination of infection should be a major concern, particularly in prisons, camps, and institutions.**

Encephalitis, Infectious, Lethargic and Nonlethargic

1. **Recognition of the disease.**—Largely clinical. At least 2 forms occur: type A and type B. Type A is the more chronic and variable in course, often with a mild febrile onset, later with symptoms of brain or nerve involvement, such as slight meningeal irritation, somnolence, diplopia, or evident paralysis of eye muscles, insomnia, restlessness, twitching, myoclonia, catatonias, with or without fever; and still later at times, slow, semirigid movements, coarse tremor, mask-like expression or other disturbances of motility, psychic or behavior disturbances, often with exacerbations and remissions over several years. Though an individual case of type B may be indistinguishable from type A, in type B the onset is usually more abrupt as to fever and headache, with drowsiness rather than deep sleep, disorientation, motor disturbances, but very infrequent paralysis of the eye muscles, meningeal irritation with an increase of cells in the spinal fluid more uniformly than in type A, and usually complete and fairly prompt recovery in the nonfatal cases. All ages are attacked in both types, children and young adults more frequently in type A, the older ages in type B. This disease is to be distinguished from post- or para-infectious encephalitis which follows or accompanies such infections as measles, vaccinia, and chicken pox, by the history of the prior infection.
2. **Etiological agent.**—Probably a virus for type A; a specific filterable virus for type B.
3. **Source of infection.**—Probably discharges from the nose and throat of carriers or of infected persons, or articles freshly soiled therewith.
4. **Mode of transmission.**—Probably by direct contact with a carrier or an infected person, or by contact with articles freshly soiled with the discharges of the nose and throat of such persons.
5. **Incubation period.**—Four to twenty-one days.
6. **Period of communicability.**—Unknown; cases rarely traceable to any previous case. Presumably at a maximum during acute febrile stage of the disease.
7. **Susceptibility and immunity.**—Effective susceptibility limited to a small fraction of the population at any age. Natural immunity or immunity resulting from an attack are assumed to occur, but have not been proved except by the ability of the blood serum to neutralize type B virus.
8. **Prevalence.**—Type A was first distinctly recognized in 1917, but had occurred before, and has since been prevalent in many parts of the world, especially from 1920 to 1926, infrequently now. Type B has been especially prevalent

in the west central provinces of Japan, intense epidemics having occurred there in 1924 and 1929. At least some of the Japanese cases were distinct immunologically from the clinically similar type B cases in the St. Louis area in 1933, where there was an incidence of 100 per 100,000 population. Type A occurs at all seasons of the year but more frequently in late winter and spring. Type B occurs notably in late summer and fall epidemics.

9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting. Clinical symptoms, assisted, especially in type B, by microscopical and chemical examination of the spinal fluid if lumbar puncture is performed.
2. Isolation: For 1 week after onset.
3. Concurrent disinfection: Discharges of the nose and throat and articles soiled therewith.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Search for prior cases in the community and for unreported cases among the associates of the patient may develop useful epidemiological information, but so far is of no practical value in control of the disease.

B. General measures: None.

Favus

1. *Recognition of the disease.*—A parasitic fungus disease of the skin, usually on the scalp, marked by cup-shaped yellowish crusts covering the hair follicles.
2. *Etiological agent.*—*Achorion schoenleinii*.
3. *Source of infection.*—Lesions of skin, particularly on scalp, rarely on nails.
4. *Mode of transmission.*—Direct contact with patient, and indirectly through toilet articles.
5. *Incubation period.*—Unknown.
6. *Period of communicability.*—Until skin and scalp lesions are all healed as shown by absence of scaling and erythema, to be confirmed by microscopic examination, culture, and absence of fluorescence under a suitable ultra-violet light.
7. *Susceptibility and immunity.*—Infection by this fungus is frequent with the presence of another patient in the family, and with neglect of personal cleanliness.
8. *Prevalence.*—Rare in children in North America, and when occurring can usually be traced to immigrants from southern and eastern Europe.
9. *Methods of control:*
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: Clinical symptoms confirmed by microscopic examination of crusts, and cultures on Sabouraud's medium.
 2. Isolation: Exclusion of patient from school and other public places until lesions are healed. Patient should wear a light, tight-fitting cotton skull cap constantly. This must be changed frequently and boiled.
 3. Concurrent disinfection: Toilet articles of patient.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Search for unreported and unsuspected cases among immediate home or play or work associates of the patient.
 - B. General measures:
 1. Elimination of common utensils, such as hair brushes and combs.
 2. Provision for adequate and intensive treatment and cure of cases of favus at hospitals and dispensaries, to abbreviate the period of infectivity of the patient.

German Measles (Rubella)

1. *Recognition of the disease.*—A febrile infection in epidemics, characterized by a polymorphous rash, sometimes resembling that of measles, sometimes that of scarlet fever, and sometimes of both at the same time; few or no

- constitutional symptoms but almost always enlargement of post-auricular, sub-occipital and cervical, and occasionally of other, lymph nodes. Usually absence of leukocytosis.
2. *Etiological agent*.—Unknown.
 3. *Source of infection*.—Secretions of the mouth and possibly of the nose.
 4. *Mode of transmission*.—By direct contact with the patient or with articles freshly soiled with the discharges from the nose or throat of the patient.
 5. *Incubation period*.—From 14 to 21 days; usually about 16 days.
 6. *Period of communicability*.—From onset of catarrhal symptoms for at least 4 days, but not more than 7; the exact period is undetermined. Highly communicable.
 7. *Susceptibility and immunity*.—Susceptibility is general among young children. An attack usually confers permanent immunity.
 8. *Prevalence*.—Epidemic in expression, occurring mostly in childhood, but more in adults than is the case with measles. Commoner in urban than in rural communities, and oftener in winter and spring than at other seasons.
 9. *Methods of control*:
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: Clinical symptoms.
 2. Isolation: Separation of the patient from nonimmune children, and exclusion of the patient from school and public places for the period of presumed infectivity. Isolation rarely practicable.
 3. Concurrent disinfection: Discharges from the nose and throat of the patient and articles soiled by discharges.
 4. Terminal disinfection: Airing and cleaning.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Of no importance except to clarify doubts created by clinical difficulty in distinguishing this disease from scarlet fever in its early stages.
 - B. General measures: None.

NOTE.—The reason for attempting to control this disease is that it may be confused with scarlet fever during its early stages; each person having symptoms of the disease should therefore be placed under the care of a physician and the case should be reported to the local department of health.

Glanders

1. *Recognition of the disease*.—Occurs in 2 forms, 1 external affecting the skin and known as "farcy", and an internal form known as "glanders." It may appear as an acute or chronic disease, with widely variable symptoms, the diagnosis being established by one or other of the following biological reactions: The complement fixation test, the mallein test, the agglutination test, or by nonspecific reactions, such as the Straus reaction, if confirmed by culture, or by identification of the *Pfeifferella mallei*, or by autopsy of the doubtful cases.
2. *Etiological agent*.—Glanders bacillus, *Pfeifferella mallei*.
3. *Source of infection*.—Discharges from open lesions of mucous membranes, or of the skin of human or equine cases of the disease (i.e., pus and mucus from the nose, throat, and bowel discharges from infected man and horse).
4. *Mode of transmission*.—Contact with a case or with articles freshly soiled by discharges from a human or equine case.
5. *Incubation period*.—Undetermined; usually 1 to 5 days.
6. *Period of communicability*.—Until bacilli disappear from discharges or until lesions have healed.
7. *Susceptibility and immunity*.—Susceptibility appears to be common. Immunity is believed to follow recovery from the infection.
8. *Prevalence*.—Rare and sporadic and almost exclusively in men occupied about horses. In widespread and local epidemics as an epizootic in horses.
9. *Methods of control*:
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting.
 2. Isolation: Human case at home or hospital; for infected horses destruction rather than isolation is advised. **Skin contact with the lesions in the living or dead body is to be scrupulously avoided.**
 3. Concurrent disinfection: Discharges from human cases and articles soiled therewith.

4. Terminal disinfection: Stables and contents where infected horses are found.
5. Quarantine of all horses in an infected stable until all have been tested by specific reaction, and the removal of infected horses and terminal disinfection of stable have been accomplished.
6. Immunization: None of established value or generally accepted.
7. Investigation of source of infection: Carriers not known in humans. Search for infected horses especially in sales stables, by observation and specific laboratory tests.

B. General measures:

1. The abolition of the common drinking trough for horses.
2. Sanitary supervision of stables and blacksmith shops.
3. Semiannual testing of all horses by a specific reaction where the disease is common.
4. Testing of all horses offered for sale where the disease is common.

NOTE.—In this disease, as in all infectious or communicable diseases from which both animals and humans suffer, cases occurring in animals should be reported to the Department of Agriculture, and human cases should be reported to the Department of Health, reciprocal notification thereafter to be accomplished through official interdepartment channels.

Gonorrhea

1. *Recognition of the disease.*—Occurring initially as an infection of one of the mucous membranes, most frequently of the genital tract, urethra in the male, the vaginal or uterine mucosa in the female, the disease develops as an acute or chronic process in adjacent or remote tissues, among the latter especially as arthritis and endocarditis. Relapsing and chronic inflammatory discharging conditions at the site of original attack are common. Demonstration of the etiological agent in the lesions or discharges is the best and only certain diagnostic procedure. Specific antibodies may be demonstrated, and specific constitutional and local reactions can be provoked.
2. *Etiological agent.*—*Gonococcus*, *Neisseria gonorrhoeae*.
3. *Source of infection.*—Discharges from lesions of inflamed mucous membranes and glands of infected persons, viz, urethral, vaginal, cervical, conjunctival mucous membranes, and Bartholin's or Skene's glands in the female, and Cowper's and the prostate glands in the male.
4. *Mode of transmission.*—By direct personal contact with infected persons, and indirectly by contact with articles freshly soiled with the discharges of such persons. In adults by sexual intercourse; in children by other personal and indirect contact with discharges.
5. *Incubation period.*—One to 8 days, usually 3 to 5 days.
6. *Period of communicability.*—As long as the gonococcus persists in any of the discharges, whether the infection be an old or a recent one. Readily communicated in sexual intercourse.
7. *Susceptibility and immunity.*—Susceptibility appears to be general, particularly of vaginal tract in young girls, and of conjunctiva in newborn. Acquired immunity does not occur generally, but some degree of transient local immunity may appear during infection. One attack and recovery does not protect against subsequent infection.
8. *Prevalence.*—Wide-spread in both sexes and at all ages, but most common among men from 18 to 40 years of age and among women at a little earlier age. Endemic, sporadic, and epidemic.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, confirmed by bacteriological examination or serum reaction.
 2. Isolation: When the lesions are in the genito-urinary tract, exclusion from sexual contact, and when the lesions are conjunctival exclusion from school or contact with children, as long as the discharges contain the gonococcus.
 3. Concurrent disinfection: Discharges from lesions and articles soiled therewith.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Each acute case should be traced to probable source of infection and appropriate control and treatment of this spreader of disease instituted. Males may continue to be carriers for a year or more; females for 2 to 3 years.

B. General measures:

1. Provision of accurate and early diagnosis, and careful treatment of infected persons, with due consideration for privacy of record, consistent with effective control of the patient, search for source of infection, and provision for following cases until cured.
2. Education in matters of sexual hygiene, particularly as to the fact that continence in both sexes at all ages is compatible with health and normal development.
3. Repression of commercialized prostitution, and associated use of alcoholic beverages, by police or other competent authority.
4. Restriction of advertising of services or medicines for the self treatment of sex diseases, etc.
5. Elimination of common towels and toilet articles from public places.
6. **Use of prophylactic silver solution in the eyes of the new-born.**
7. Personal prophylaxis should be advised to those who expose themselves to opportunity for infection, and made available for use immediately after sexual intercourse.
8. Exclusion of persons in the communicable stage of the disease from occupations involving contact with children.

Influenza

1. *Recognition of the disease.*—Whether occurring in a pandemic, in endemic-epidemic incidence, or as sporadic cases this disease is characterized in its typical form by sudden onset, fever of 1 to 7 days' duration, accompanied by excessive prostration, aches and pains in back and limbs, coryza and bronchitis, and not uncommonly by pneumonia as a complication. During epidemics when such cases occur in large numbers and over a wide area, other cases of less distinctive type are found to be epidemiologically related to typical cases, and in these the diagnosis would not be made without such obvious association. The clinical criteria of influenza are quite indefinite, particularly in absence of widespread prevalence of the disease. Microscopic or other laboratory procedures are of no practical value in determining or excluding the diagnosis of influenza.
2. *Etiological agent.*—A filterable virus; associated often with various types of bacteria as secondary invaders.
3. *Source of infection.*—Probably discharges from the mouth and nose of infected persons and articles freshly soiled by such discharges.
4. *Mode of transmission.*—Believed to be by direct contact, by droplet infection, or by articles freshly soiled with discharges of the nose and throat of infected persons.
5. *Incubation period.*—Short, usually 24 to 72 hours.
6. *Period of communicability.*—Undetermined; possibly in prodromal as well as in the febrile stage and convalescent stages.
7. *Susceptibility and immunity.*—Susceptibility is not general, for natural resistance or relative immunity appears to protect from one-quarter to three-quarters of persons intimately exposed to the disease even during widespread epidemics. Acquired immunity if it is actually developed by an attack of and recovery from the disease is of short duration (a few months) and of low grade, or perhaps only effective against a certain strain or strains of the virus.
8. *Prevalence.*—Uncertain in pandemic, local epidemic, and sporadic occurrence, by reason of indefinite clinical symptoms. In epidemics may affect up to 50 percent of the population, especially at age groups between infancy and maturity. Commonly between December and May in North America. Occurs pandemically in cycles with intervals of several decades.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: By clinical symptoms only. Uncertain in interepidemic periods.
 2. Isolation: During acute stage of the disease, especially in severe cases and those complicated by pneumonia.
 3. Concurrent disinfection: Discharges from the nose and throat of the patient.
 4. Terminal disinfection: None.
 5. Quarantine: None, but visiting should be discouraged.
 6. Immunization: None.
 7. Investigation of source of infection: Of no practical value.

B. General measures:

1. During epidemics efforts should be made to reduce opportunities for direct contact infection, as in crowded halls, stores, and street cars. Kissing, the use of common towels, glasses, eating utensils, or toilet articles should be avoided. In isolated towns and institutions infection has been delayed and sometimes avoided by strict exclusion of visitors from already infected communities. The closing of the public, parochial, and private schools has not been effective in checking the spread of infection. The judicious use of masks by nurses and other attendants may prove of value in preventing infection in hospitals. Scrupulous cleanliness of dishes and utensils used in preparing and serving food in public eating places should be required, including the subjection of such articles to disinfection in hot soap suds. In groups which can be brought under daily professional inspection, the isolation of early and suspicious cases of respiratory tract inflammation, particularly when accompanied by a rise in temperature, may delay the spread of the disease. To minimize the severity of the disease, and to protect the patient from secondary infections and thus reduce mortality, patients should go to bed at the beginning of an attack and not return to work without the approval of their physician.
2. Crowding of beds in hospitals and institutions to accommodate increased numbers of patients and other inmates is to be especially avoided. Increased spacing between beds in wards and dormitories should be carried out to reduce the risk of attack, and of the occurrence of pneumonia.

Leprosy

1. *Recognition of the disease.*—The disease is to be identified by lesions of the skin and mucous membranes and by neurological manifestations. Confirmation by microscopic examination is usually possible in cutaneous and mixed types of the disease but may be difficult or impossible in maculo-anesthetic and neural cases.
2. *Etiological agent.*—Leprosy bacillus, *Mycobacterium leprae*.
3. *Source of infection.*—Discharges from lesions.
4. *Mode of transmission.*—Intimate and prolonged contact with infected individuals and some other as yet undetermined factor are apparently necessary.
5. *Incubation period.*—Prolonged, undetermined, from 1 to several years.
6. *Period of communicability.*—Commences when lesion becomes open, i. e., discharges leprosy bacilli; continues until healing. Patients with demonstrable acid-fast bacilli in smears from skin or mucous membranes are potentially "open" cases even if demonstrable ulceration be not present. Communicable only in certain geographic areas; in continental United States notably in States bordering on the Gulf of Mexico.
7. *Susceptibility and immunity.*—Susceptibility uncertain; no racial immunity.
8. *Prevalence.*—Endemic in some Gulf coast areas, Hawaii, Philippines, and Puerto Rico. Sporadic in North America and rare. Oftener among adolescent and young adult males.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting. Clinical symptoms confirmed by microscopic examination where possible.
 2. Isolation: Isolation of bacteriologically positive cases occurring in endemic form in national leprosarium until a condition of apparent arrest has been present for at least 6 months, as determined by clinical observation and by absence of acid-fast bacilli on repeated examinations. Paroled and other negative lepers should be reexamined periodically, the suggested interval being 6 months.
 3. Concurrent disinfection: Discharges and articles soiled with discharges.
 4. Terminal disinfection: Thorough cleaning of living premises of patient.
 5. Quarantine: None.
 6. Immunization: None.

7. Investigation of source of infection: This should be undertaken especially in cases of apparently recent origin. The long and uncertain period of incubation, and the length of intimate contact believed to be necessary, make the discovery of the source of infection a matter of great difficulty.

B. General measures:

1. In endemic areas leprosy is usually contracted in childhood but it may be acquired in adult life. Infants should be separated from leprosy mothers at birth, and in educational efforts stress should be placed upon the greater risk of exposure in early life.
2. Lack of information as to the determining factors in the spread and communication of the disease makes any but general advice in matters of personal hygiene of no value.
3. As a temporary expedient, lepers may be properly cared for in local hospitals, or if conditions of the patient and his environment warrant, he may be allowed to remain on his own premises under suitable regulations.
4. In those parts of the United States in the temperate zone farther north where the disease shows no tendency to spread, suitable medical and nursing care of infected persons is sufficient.

Malaria

1. **Recognition of the disease.**—A group of specific infectious fevers due to invasion of the red blood cells by 1 of at least 3 types of Sporozoa of the genus *Plasmodium*. These fevers occur endemically or epidemically and are associated with a symptom complex fairly characteristic of each variety, marked particularly by periodicity of fever and symptoms due to the growth and development of the organism. Enlargement of the spleen, secondary anemia, and the characteristic recurrence of chills and fever as clinical findings are confirmed by observing presence of the malaria parasites in blood film on microscopic examination. Mosquitoes of anopheline family are the only known vectors.
2. **Etiological agent.**—The several species of micro-organisms: *Plasmodium vivax* (tertian), *Plasmodium malariae* (quartan), *Plasmodium falciparum* (estivo-autumnal).
3. **Source of infection.**—The blood of an infected individual.
4. **Mode of transmission.**—By bite of the infected *Anopheles* mosquitoes. The mosquito is infected by biting an individual suffering from acute or chronic malaria. The parasite develops in the body of the mosquito for from 10 to 14 days (21 days for quartan), after which time the sporozoites appear in its salivary glands.
5. **Incubation period.**—Varies with the type of species of infecting micro-organism and the amount of infection, usually 14 days in the tertian variety.
6. **Period of communicability.**—As long as the sexual form of the malaria micro-organism exists in the circulating blood in sufficient quantities to infect mosquitoes. In untreated cases this may last for months.
7. **Susceptibility and immunity.**—Susceptibility is universal, although Negroes appear to suffer less severely from the disease. Some relative immunity appears to follow repeated attacks of the disease. A state of good nutrition is believed to be a factor in maintaining resistance to the disease and in spontaneous recovery.
8. **Prevalence.**—Endemic and sporadic, more frequently among children than adults, among Negroes more than among whites. Particularly prevalent in the southeast coastal plain, Mississippi Valley, south of St. Louis, in eastern Texas, New Mexico, Louisiana, Arkansas, southern Missouri, and slightly in California and Oregon. Serious in Puerto Rico and the Philippines. Seasonal occurrence of tertian type in early summer, estivo-autumnal in early fall.
9. **Methods of control:**
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, always to be confirmed by microscopical examination of the blood. Repeated examination of blood films may be necessary.
 2. Isolation: The individual with malarial parasites in his blood should be protected from the bites of mosquitoes. With the exception of this simple precaution, isolation and quarantine are of no avail.

3. Concurrent disinfection: None. Destruction of *Anopheles* mosquitoes in the sick room.
 4. Terminal disinfection: Destruction of *Anopheles* mosquitoes in the sick room.
 5. Quarantine: None.
 6. Immunization: None. The administration of prophylactic doses of quinine should be insisted on for those constantly exposed to infection and unable to protect themselves against *Anopheles* mosquitoes. This is not in an exact sense prophylaxis but early therapeutics.
 7. Specific therapy: Quinine bisulphate is preferred for routine treatment and "atebrin" is found by some to be equally reliable. Plasmochin seems to be specific for destruction of the adult sexual form of the parasite in estivo-autumnal malaria and in conjunction with quinine for tertian and quartan infections.
 8. Investigation of source of infection: Breeding places and house infestation by *Anopheles* mosquitoes should be sought for and larvae and mosquitoes destroyed when and where possible. Carriers of the malarial micro-organism, untreated, or inadequately treated, should be sought and brought under systematic therapy until the micro-organism can no longer be found in their blood.
- B. General measures:
1. Employment of known measures for destroying larvae of anophelines and the eradication of breeding places of such mosquitoes.
 2. Blood examination of persons living in infected centers to determine the incidence of infection.
 3. Screening sleeping and living quarters; use of mosquito nets.
 4. Killing mosquitoes in living quarters.
 5. Education of the public as to the mode of spread and methods of prevention of malaria.

Measles

1. *Recognition of the disease.*—Clinical characteristics are fever, catarrhal symptoms in eyes and nose and throat in the prodromal stage, as well as at the height of the disease, an early eruption in the mouth, Koplik spots, later an exanthem and enanthem, and a branny desquamation during convalescence. When the disease is prevalent, or a susceptible child has been exposed to a case of measles, the diagnosis should be suspected on appearance of the fever and catarrhal symptoms, without waiting for confirmatory eruptions, and isolation precautions should be instituted at once.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Buccal and nasal secretions of an infected individual.
4. *Mode of transmission.*—Directly from person to person; indirectly through articles freshly soiled with the buccal and nasal discharges of an infected individual. The most easily transmitted of the communicable diseases.
5. *Incubation period.*—About 8 to 10 days from date of exposure to onset of fever; 12 to 14 days to appearance of rash; rarely as long as 18 days. When convalescent serum has been used, but too late to prevent infection, the incubation period may be as long as 21 days.
6. *Period of communicability.*—During the period of catarrhal symptoms and until the cessation of abnormal mucous membrane secretions—minimum period of 9 days; from 4 days before to 5 days after the appearance of the rash.
7. *Susceptibility and immunity.*—All persons must be considered susceptible until they have had the disease, except that most babies born of mothers who have had the disease are immune for the first 6 months of life. Natural immunity may last into adult life in rare instances. Acquired immunity is usual after recovery from an attack. Passive immunity may be established for a few weeks, but not more than 4, by the use of 4 to 10 cc of convalescent measles serum or 20 to 50 cc of whole blood of immunes, or if citrated blood is used, 25 to 60 cc.
8. *Prevalence.*—Universal. Probably 80 to 90 percent of all persons surviving to the twentieth year of life have had an attack, and rarely does a person go through life without having had measles. Occurs most commonly in chil-

dren between 5 to 14 years of age, but many cases are in children under 5. Endemic in large population units. In remote or insular groups epidemics occur on contact with a case in a visitor. Highest incidence from March to June in North America. Frequency of epidemics depends on size of community, or proximity to a large center, amount of communication between large and small population groups, accretion of population by births and other less exactly determined factors. Much more likely to result in death from complicating pneumonia in children under 2 than at higher ages.

9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms. Special attention to rise of temperature, Koplik spots and catarrhal symptoms in exposed individuals.
2. Isolation: During period of communicability for the sake of the patient as well as others.
3. Concurrent disinfection: All articles soiled with the secretions of the nose and throat.
4. Terminal disinfection: Thorough cleaning.
5. Quarantine: When the disease is very prevalent and in large communities, quarantine of exposed susceptible children may be impracticable and of no value. Exclusion of exposed susceptible school children and teachers from school until 14 days from last exposure may be justifiable under other conditions. This applies to exposure in the household. Exclusion of exposed susceptible children from all public gatherings for the same period. If the date of only exposure is reasonably certain, an exposed susceptible child of school age may be allowed to attend school for the first 7 days of the incubation period. Quarantining of institutions of young children and of wards or dormitories where exposure is suspected is of some value. Strict quarantine of wards of infants if a case occurs in an institution is important.
6. Immunization: By the use of the serum or whole blood of convalescent patients, or of any healthy adults who have had measles, given within 5 days after exposure to a known case of measles, the attack in the exposed person may be averted in a high percentage of instances; if not averted, the disease is modified. Given later, but at a time prior to the clinical onset of the disease, convalescent serum usually modifies the severity of the attack and the patient probably acquires the usual lasting immunity to the disease.
7. Investigation of source of infection: Search for exposed susceptible children under 3 years of age is profitable. Carriers are not known to occur. Every effort should be made to have all cases reported early in the disease by the physician, or, if there is none in attendance, by parent or guardian. The chief object of discovering cases is to assure suitable care for little children and immunization if practicable of those exposed under 5 years of age.

B. General measures:

1. Daily examination of exposed children and of other possibly exposed persons. This examination should include record of the body temperature. A nonimmune exposed individual exhibiting a rise of temperature of 0.5° C. or more should be promptly isolated pending diagnosis.
2. Schools should not be closed or classes discontinued where daily observation of the children by physician and nurse is provided for.
3. Education as to special danger of exposing young children to those exhibiting fever and acute catarrhal symptoms of any kind, particularly during years and seasons of epidemic prevalence of measles.
4. In institutional outbreaks, immunization with convalescent serum of all minor inmates who have not had measles is of value in checking the spread of infection and in reducing mortality. No new admissions and no visitors under 16 years of age should be permitted in an institution for children, during a measles outbreak in the community or in the institution.
5. The immunization of infants and children under 3 years of age with convalescent serum or whole adult blood in families where cases of measles occur in older children or adults should be encouraged by the department of health and by private physicians.

Meningococcus Meningitis

1. **Recognition of the disease.**—An acute infectious disease with sudden onset, fever, headache, nausea, rigidity of neck, and in epidemics not infrequently petechial spots on the skin. The specific micro-organism in one of its several types may in some cases be found in the early stages by blood culture, and usually during the course of the disease in the spinal fluid, and in the discharges of the retronasal surfaces. The disease occurs in epidemic and sporadic manner.
2. **Etiological agent.**—Meningococcus; *Neisseria intracellularis*.
3. **Source of infection.**—Discharges from the nose and mouth of infected persons. Clinically recovered cases, and healthy persons not known to have had the disease but recently in contact with cases or other carriers may act as carriers and are commonly found, especially during epidemics. Such healthy carriers are found independent of epidemic prevalence of the disease, even up to 5 to 10 percent of a general population.
4. **Mode of transmission.**—By direct contact with infected persons and carriers and indirectly by contact with articles freshly soiled with the nasal and mouth discharges of such persons.
5. **Incubation period.**—Two to ten days, commonly seven; tends to be short in epidemics; in rare instances the period may be longer when a carrier develops the disease.
6. **Period of communicability.**—During the clinical course of the disease and until the specific micro-organism is no longer present in the nasal and mouth discharges of the patient, about 2 weeks. The same applies to healthy carriers so far as affects persistence of infectious discharges. Readily communicable in crowded living conditions among persons of lowered resistance.
7. **Susceptibility and immunity.**—Susceptibility is limited. Acquired immunity from having had the disease, apart from immediate clinical relapses, may be of long duration but is uncertain. There is no artificial immunity. Resistance to infection appears to be low when those exposed to crowded conditions of living are also fatigued and ill fed.
8. **Prevalence.**—Usually low incidence of sporadic cases. Within a community in epidemics at long but irregular intervals. The cases are mostly in children under 10 years of age and in young adults, but occur at all ages. Local epidemics commonly related to chronic or emergency overcrowding of living quarters, as in ships, barracks, and lodging houses or slums, and usually in the winter or spring. No limitations in geographical distribution.
9. **Methods of control:**
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms confirmed by the microscopic and bacteriological examination of the spinal fluid, and by bacteriological examination of nasal and pharyngeal secretions.
 2. Isolation of infected persons until 14 days after onset of the disease or until negative swabs are obtained from the naso-pharynx.
 3. Concurrent disinfection: Of discharges from the nose and mouth or articles soiled therewith.
 4. Terminal disinfection: Cleaning.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Impracticable.
 - B. General measures:
 1. Education as to personal cleanliness and necessity of avoiding contact and droplet infection.
 2. Prevention of overcrowding such as is common in living quarters, transportation conveyances, working places, and especially in barracks, camps, and ships.
 - C. Epidemic measures:
 1. Increase the separation of individuals and the ventilation in living and sleeping quarters for such groups of people as are especially exposed to infection because of their occupation or some necessity of living conditions. Chilling, bodily fatigue, and strain should be minimized for those especially exposed to infection.

Mumps

1. *Recognition of the disease.*—Acute specific infection characterized by fever, swelling, and tenderness of the salivary glands, usually of the parotid, sometimes of the sublingual or submaxillary glands. Metastases occur sometimes in the ovaries and testicles. Epidemic occurrence is usual, especially in schools, colleges, and barracks, of new recruits. Inflammation of Stenson's duct may assist in early diagnosis. There are no laboratory aids of value.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Secretions of the mouth and possibly of the nose.
4. *Mode of transmission.*—By direct contact with an infected person or with articles freshly soiled with the discharges from the nose and throat of such infected persons.
5. *Incubation period.*—From 12 to 26 days. The most common period 18 days, accepted as usual. A period of 21 days is not uncommon.
6. *Period of communicability.*—Unknown, but assumed to persist until the parotid gland has returned to its normal size.
7. *Susceptibility and immunity.*—Susceptibility believed to be general. Immunity follows an attack but second attacks of the disease are not rare. Brief passive immunity may follow inoculation with convalescent serum or whole blood.
8. *Prevalence.*—This disease is decidedly less prevalent than the other common communicable diseases of childhood such as measles, whooping cough, and chicken pox. Winter and spring are the seasons of greatest prevalence. Its occurrence is sporadic and epidemic except in large cities, where it is endemic.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: The diagnosis is usually made on swelling of the parotid gland.
 2. Isolation: Separation of the patient from nonimmune children and young children and young people and exclusion of the patient from school and public places for the period of presumed infectivity, particularly when the disease appears in children's institutions or among young recruits.
 3. Concurrent disinfection: All articles soiled with the discharges of nose and throat of the patient.
 4. Terminal disinfection: None.
 5. Quarantine: None. Exposed susceptible persons should be regularly inspected for the onset, the presence of initial symptoms of the disease, such as fever, or swelling or pain of the parotid, or submaxillary glands, for 3 weeks from the date of last exposure. Exposed children medically certified as having had the disease should not be excluded from school as susceptibles.
 6. Immunization: None. Passive temporary immunity by convalescent serum or blood still in experimental stage.
 7. Investigation of source of infection: Search for unreported or recent cases among associates of the patient in school or family or other group of young people. Carriers are not known to occur.
 - B. General measures: None.

Paratyphoid Fever

1. *Recognition of the disease.*—A general infection with the paratyphoid bacillus characterized especially by continued fever and involvement of the lymphoid tissues of the intestines, enlargement of the spleen, and a variety of constitutional symptoms, sometimes rose spots on the trunk, usually diarrheal disturbance. The infecting micro-organism may be found in the feces, blood, and urine.⁵
2. *Etiological agent.*—Paratyphoid bacillus A, B, or C; *Salmonella paratyphi*; *Salmonella schottmülleri*.
3. *Source of infection.*—Bowel discharges and urine of infected persons, and water or foods contaminated with such discharges of infected persons or of healthy carriers. Healthy carriers may be numerous in an outbreak.

⁵ The human disease paratyphoid fever should not be confused with cases of food poisoning or with infection due to enteritidis bacilli of animal origin.

4. *Mode of transmission*.—Directly by personal contact; indirectly by contact with articles freshly soiled with the discharges of infected persons or through milk, water, or food contaminated by such discharges, probably by flies.
5. *Incubation period*.—Four to ten days; average, seven days.
6. *Period of communicability*.—From the appearance of prodromal symptoms, throughout the illness and relapses, during convalescence, and until repeated bacteriological examination of discharges shows absence of the infecting organism.
7. *Susceptibility and immunity*.—Susceptibility is general. Natural immunity probably exists in some adults. Acquired immunity is usually permanent after recovery from the disease. Artificial active immunity of probably 2 years' duration can be developed by the use of vaccines.
8. *Prevalence*.—Frequency has fallen with that of typhoid fever until in most parts of North America it is relatively rare, occurring sporadically or in small local carrier or contact epidemics. Probably nowhere endemic in North America.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms confirmed by specific agglutination test, or by bacteriological examination of blood, bowel discharges, or urine.
 2. Isolation: In fly-proof room, preferably under hospital conditions, of such cases as cannot command adequate sanitary environment and nursing care in their homes.
 3. **Concurrent disinfection: Disinfection of all bowel and urinary discharges and articles soiled with them.**
 4. Terminal disinfection: Cleaning.
 5. Quarantine: None.
 6. Immunization: Of exposed susceptibles.
 7. Investigation of source of infection: Search for common source in polluted water, milk, shellfish or other food, and individual sources as unreported cases and carriers.
 - B. General measures:
 1. **Protection and purification of public water supplies.**
 2. **Pasteurization of public milk supplies.**
 3. Limitation of collection and marketing of shellfish to those from approved sources.
 4. Supervision of other food supplies, and of food handlers.⁶
 5. Prevention of fly breeding.
 6. **Sanitary disposal of human excreta.**
 7. Extension of immunization by vaccination to persons especially subject to exposure by reason of occupation and travel, to those living in areas of high endemic incidence of typhoid fever, and to those for whom the procedure can be systematically and economically applied, as military forces and institutional populations, depending on prevalence of the disease.
 8. Discovery and supervision of paratyphoid carriers and their exclusion from the handling of foods.
 9. Exclusion of suspected milk supplies on epidemiological evidence pending discovery and elimination of the personal or other cause of contamination of the milk.
 10. Exclusion of suspected water supplies until adequate protection or purification is provided unless all water used for toilet, cooking, and drinking purposes is boiled before use.

Plague, Bubonic, Septicemic, Pneumonic

1. *Recognition of the disease*.—An acute infection running a rapid, severe course, often terminating fatally, and characterized by extreme weakness, high fever, buboes, severe general symptoms, and often accompanied by subcutaneous hemorrhage and pustules. The infecting micro-organism is regularly found in the buboes and skin lesions, and in the pneumonic type of the disease in the sputum. Pneumonic plague gives the picture of a virulent septic pneumonia.

⁶ It is not assumed that an entirely effective supervision of all food handlers can be achieved or would be administratively justified by results in view of the cost. Food handlers to whom epidemiological evidence points as carriers should be brought under control of the health department.

2. *Etiological agent*.—Plague bacillus; *Pasteurella pestis*.
3. *Source of infection*.—Blood of infected rodents and, in the pneumonic form, the sputum of human cases. The primary or indigenous source of the disease is the so-called "wild-plague", the animal reservoir among such rodents as the tarbigan of Manchuria, and the ground squirrel of California. Infection may reach man from these sources, or more often through the medium of the rat.
4. *Mode of transmission*.—Direct, in the pneumonic form. In other forms the disease is generally transmitted by the bites of fleas (*Xenopsylla cheopis* and *Ceratophyllus fasciatus*), by which the disease is carried from rats to man, also by fleas from other rodents. Accidental, by inoculation.
5. *Incubation period*.—Commonly from 3 to 7 days, although occasionally prolonged to 8 or even 14 days.
6. *Period of communicability*.—Pneumonic type intensely communicable during acute symptoms. Bubonic type not communicable from person to person.
7. *Susceptibility and immunity*.—Susceptibility is general, particularly to the pneumonic form. Natural immunity may exist but is rare. Lasting immunity almost always results from recovery from an attack of the disease. Artificial passive immunity of about 3 to 4 weeks' duration by antiplague serum, and active immunity of about 6 months' duration by vaccines may be relied upon.
8. *Prevalence*.—Very rare in North America and insular possessions, and only sporadic cases, from exposure to infection to ground squirrels in California. Endemic in ground squirrels in large areas on Pacific Coast. Occasionally found in rats trapped at seaports.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, confirmed by bacteriological examination of blood, pus from glandular lesions, or sputum. Animal inoculation of material from suspected cases.
 2. Isolation: Patient in hospital if practicable; if not, in a screened room which is free from vermin.⁷
 3. Concurrent disinfection: Sputum and articles soiled therewith, in pneumonic type of the disease.
 4. Terminal disinfection: Thorough cleaning followed by fumigation to destroy rats and fleas.
 5. Quarantine: Contacts of pneumonic cases for 7 days.
 6. Immunization: Ordinarily not practicable.
 7. Investigation of source of infection: Search for human (in pneumonic) and rodent (in bubonic) sources to which patient is known to have been exposed, among wild rodents, and particularly the rat.
 - B. General measures:
 1. Extermination of rats and vermin by use of known methods for their destruction; destruction of rats on ships arriving from infected ports; examination of rats, ground squirrels, etc., in areas where the infection persists, for evidence of endemic or epidemic prevalence of the disease among them.
 2. Rat-proofing of buildings and elimination of breeding places and opportunities for the harboring and feeding of rats as a fundamental sanitary measure.
 3. Investigation of all deaths during epidemics with autopsy and laboratory examination when indicated.
 4. Handling of corpse under antiseptic precautions.

Pneumonia, Acute Lobar

1. *Recognition of the disease*.—An acute infection characterized by sudden onset with chill followed by fever, often pain in the chest, usually cough and dyspnoea. In many cases in children, vomiting and convulsions occur at the onset. Determination of the infecting micro-organism by microscopic and cultural examination of the sputum is useful as an aid in therapy and

⁷ In plague pneumonia, personal prophylaxis to avoid droplet infection must be carried out by persons who come in contact with the sick. Masks of closely woven cloth with mica windows should be worn over the head and to the shoulders. A long gown and rubber gloves drawn over the sleeves of the gown should be provided. These articles should not be removed from the sick room until disinfected.

for epidemiological studies. The X-ray may disclose pulmonary lesions before the stethoscope.

2. *Etiological agent*.—Various pathogenic bacteria commonly found in the nose, throat and mouth, such as the pneumococcus in about 95 percent of the cases, and of these, 50 percent types I and II; the bacillus of Friedländer; in occasional cases, the hemolytic streptococcus; the influenza bacillus, etc.
3. *Source of infection*.—Probably discharges from the mouth and nose of infected person or carrier and articles freshly soiled with such discharges. Except when already attacked by some respiratory infection, exposed individuals rarely develop pneumonia as a result of transmission of infection by direct or indirect means from the patient.
4. *Mode of transmission*.—By direct contact with infected person or carrier, or with articles freshly soiled with the discharges of the nose and throat of such persons, and possibly from infected dust of rooms occupied by infected persons.
5. *Incubation period*.—Believed to be short, usually 1 to 3 days—not well determined.
6. *Period of communicability*.—Unknown; presumably until the discharges of the mouth and nose no longer carry the infectious agent in an abundant amount or in a virulent form.
7. *Susceptibility and immunity*.—Susceptibility is general, accentuated by wet and cold and exposure, and apparently under certain conditions by bodily and mental fatigue, and by alcoholism. Natural immunity may occur, follow an attack of pneumonia; such immunity is of short duration. Artificial is doubtful. Acquired immunity to the particular micro-organism may be active or passive immunity cannot be relied upon.
8. *Prevalence*.—Common, and affecting at one time or other, between adolescence and old age, a large proportion of the population. No race or color or either sex is exempt from likelihood of having this disease. Occurs in all climates and seasons, but most often in winter and spring and in regions where cold, windy, changeable, and inclement weather prevails.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms. Specific infecting organisms may be determined by serological and bacteriological tests early in the course of the disease, which may give basis for epidemiological studies and for specific serum therapy.
 2. Isolation: Medical aseptic technique preferably at home.
 3. Concurrent disinfection: Discharges from the nose and throat of the patient.
 4. Terminal disinfection: Thorough cleaning and airing.
 5. Quarantine: None.
 6. Immunization: None.
 - B. General measures:
 1. Whenever practicable and particularly in institutions, barracks, and on shipboard, crowding in living and sleeping places should be avoided. The general resistance should be conserved by good food, fresh air, sufficient sleep, temperance in the use of alcoholic beverages, and other hygienic measures.

Poliomyelitis

1. *Recognition of the disease*.—An acute infection with moderate initial fever, usually headache and gastro-intestinal symptoms such as vomiting and constipation, drowsiness alternating with irritability, hyperesthesia, stiffness of neck and spine, usually accompanied by an increase in pressure and in the number of cells in the spinal fluid, tremor, and exaggeration of the muscular reflexes. Later, local diminution of reflexes and local motor weakness (paralytic). Any of these symptoms may be absent, but the diagnosis of the cases which are not at some time paralytic is so frequently uncertain that only paralytic cases should be counted officially as poliomyelitis, due precautions being taken in the others. Paralysis may be sudden and cause death within a few hours of onset by cessation of respiration without clear-cut symptoms. There is a marked tendency for the paralysis to improve after it has reached its height.
2. *Etiological agent*.—A specific filterable virus.

3. *Source of infection.*—Nose and throat discharges of infected persons and carriers, or articles recently soiled therewith. Unpasteurized milk is a rare source of infection.
4. *Mode of transmission.*—The virus enters the brain by way of the olfactory nerves and bulb when introduced into the nose or nasopharynx of a susceptible person, presumably from a carrier in most instances.
5. *Incubation period.*—Commonly 7 to 14 days.
6. *Period of communicability.*—Not definitely known, but apparently covered by the latter part of the incubation period and the first week or two of the disease—possibly much longer in a very few cases, but cases are not as a rule directly traceable to any previous case.
7. *Susceptibility and immunity.*—Infants born of immune mothers are believed to retain their immunity for about 1 year. Children are more frequently susceptible than adults except in extremely isolated communities not previously reached by the infection. Immunity is usually high among adults who have lived in large cities, less among those in rural sections. An attack of the disease gives permanent immunity as a rule, although second attacks have been observed.
8. *Prevalence.*—Infection occurs practically throughout the world, but cases are most frequent in the cooler part of the temperate zone, occurring both sporadically and in epidemics at irregular intervals, with the highest incidence in late summer and fall. Ten cases per 100,000 population per year is an ordinary incidence.
9. *Methods of control:*
 - A. *Infected individual, contacts, and environment:*
 1. *Recognition of the disease and reporting:* Clinical symptoms, assisted by microscopical and chemical examination of the spinal fluid if lumbar puncture is performed.
 2. *Isolation:* For 2 weeks from onset. Almost invariably the period of restriction of visitors and care in bed desirable for the patient extends beyond the period of presumed communicability of the disease.
 3. *Concurrent disinfection:* Nose and throat discharges and articles soiled therewith.
 4. *Terminal disinfection:* None.
 5. *Quarantine:* Exposed children of the household of school age are to be kept from school, and adults of the household whose vocations bring them into contact with children or with food to be eaten uncooked are to be kept from such vocation for 14 days from last exposure to recognized case.
 6. *Immunization:* None.
 7. *Investigation of source of infection:* Search for and expert diagnosis of sick children to locate unrecognized and unreported cases of the disease.
 - B. *General measures during epidemics:*
 1. General warning to physicians and the laity of the prevalence or increase of incidence of the disease, description of usual characteristics of onset, and necessity for diagnosis and medical care, particularly for bed rest of patients and protection of their muscles.
 2. All children with fever should be isolated pending diagnosis.
 3. Education in such technique of bedside nursing as will prevent distribution of infected discharges to others from cases isolated at home.
 4. Protection of children so far as practicable against unnecessary contact with other persons, especially those outside their own homes, during epidemic prevalence of the disease.
 5. Avoidance of unnecessary physical strain in children during an epidemic or in case of known exposure.

Psittacosis

1. *Recognition of the disease.*—The clinical criteria are an onset with chilly sensations, fever, headache; early pneumonic involvement; cough absent or usually nonproductive at first, later usually present and productive; sputum light yellow and characterized by extreme viscosity; tongue, white coat; anorexia extreme; constipation the rule; pulse usually slow in relation to temperature; great prostration; delirium common; albuminuria almost

constant; relapses not uncommon. The white blood count is normal or slightly increased early, with leucopenia later. The disease may be transmitted to healthy susceptible birds or mice by inoculating blood drawn during first week of illness; the diagnostic criteria are the characteristic pathological changes in mice with the presence of elementary bodies (Leventhal-Coles-Lillie) in impression smears from the spleens of mice; the sputum, if obtainable, is more uniformly infectious than the blood; repeated trials are necessary.

2. *Etiological agent*.—A specific filterable virus.
3. *Source of infection*.—Newly acquired parrots, parakeets, love birds, or canaries. Birds which are apparently well occasionally transmit the infection.
4. *Mode of transmission*.—Contact with infected birds or their recent surroundings. Occasionally through a human case.
5. *Incubation period*.—In human cases, 6 to 15 days.
6. *Period of communicability*.—Ill birds and their surroundings highly infectious for man; patients less dangerous. The period of communicability of human cases is during their acute illness, especially when coughing.
7. *Susceptibility and immunity*.—All ages susceptible, but the disease is more severe in the higher age groups. One attack confers immunity.
8. *Prevalence*.—Usually in sudden house outbreaks among persons exposed to ill tropical birds. Deaths mainly confined to persons over 30 years of age. Females more frequently attacked than males because of more frequent exposure. Case fatality 20 to 50 percent.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting.
 2. Isolation: Important during the febrile and acute clinical stage of the disease. When actually handling patients with a cough, nurses should wear gauze masks, 8 layers of 40 to 48 threads per inch, or 16 layers 20 to 24 threads per inch.
 3. Concurrent disinfection: Of all discharges.
 4. Terminal disinfection: Incriminated birds should be killed and their bodies immersed in 2-percent cresol. The spleens then should be aseptically removed, placed in equal parts of sterile glycerin and standard phosphate buffer solution of pH 7.5, or in suitable fixative, and sent to the nearest available laboratory for examination. Carcasses should be burned before feathers dry.
 5. Quarantine: Buildings which housed birds should be quarantined until thoroughly cleaned and disinfected.
 6. Immunization: No demonstrated method yet fully accepted.
 7. Investigation of source of infection: Important, in order to trace infected lots of birds. Though apparently healthy birds occasionally convey the disease, healthy human carriers are unknown.
 - B. General measures—
 1. Strict regulation of traffic in birds of parrot family based on quarantine and laboratory examination.
 2. Quarantine of homes and pet shops known to have harbored infected birds until thoroughly cleaned.
 3. Education of community in the danger of making house pets of birds of the parrot family, particularly when the birds have been recently imported or are of doubtful history as to contact with other and especially with sick birds of tropical origin.

Puerperal Infection (Puerperal Septicemia)

1. *Recognition of the disease*.—Rise of temperature and local and general symptoms of bacterial invasion of the genital tract of the postpartum patient. Bacteriological examination of discharges and surfaces of the vagino-uterine tract may identify the infecting organism.
2. *Etiological agent*.—Usually a hemolytic streptococcus, staphylococcus, or other pus-forming micro-organism among those commonly found on the hands, in the nose and throat, and in infected wounds.
3. *Source of infection*.—The hands and instruments used in the examinations just prior to or during or following confinement; the nose and throat of the parturient woman or her attendants just prior to, during, or just after confinement; infectious processes and discharges of the genital tract prior to confinement.

4. *Mode of transmission*.—Direct transfer to the tissues of the parturient canal by hands, instruments, dressings, by droplets discharged in speaking, sneezing or coughing from infected or carrier individuals brought into close relation to the patient during or after delivery. Indirectly by articles soiled by infectious discharges brought into contact with the genital tract of the patient.
5. *Incubation period*.—One to three days; rarely longer.
6. *Period of communicability*.—Not communicable among parturient or postpartum cases except through the intermediate transmission of infection by attendants.
7. *Susceptibility and immunity*.—Terms not properly applicable. The chief factors of susceptibility are the state of the parturient canal during and after confinement, the state of exhaustion, or fatigue, or chilling, and loss of blood following delivery, and the exposure of mucous membranes to trauma and contact in the course of the delivery. There is no immunity by artificial means except such as derived from care and cleanliness in the antepartum, delivery, and postpartum care of the mother.
8. *Prevalence*.—The most common cause of preventable sickness and death related to child bearing.
9. *Methods of control*:
 1. Better education of physicians, nurses, and midwives in the science and art of midwifery.
 2. Licensing and supervision of midwives where better attendance at childbirth cannot be provided.
 3. Official supervision or licensing of all institutions offering maternity services.
 4. Education of women in the hazards of self-interruption of pregnancy.

Rabies

1. *Recognition of the disease*.—In the human being this acute, specific, rapidly fatal infection may not be recognized until a spasm of deglutition appears, unless the earlier and mild constitutional symptoms such as an expression of anxiety, paresthesias especially in or near the wound, and some paralysis have been looked for after the bite of a rabid animal. In the dog or other animal, recognizable symptoms are any unexplained change in behavior followed by excitability or paralysis, and death within 10 days of onset of symptoms. Verification of cause of death may be established by discovery of Negri bodies in nerve cells of brain or cord, or by animal inoculation.
2. *Etiological agent*.—A specific filterable virus.
3. *Source of infection*.—Saliva of infected animals, chiefly dogs.
4. *Mode of transmission*.—Inoculation of denuded tissue with saliva of infected animals, almost always by bites.
5. *Incubation period*.—Usually 2 to 6 weeks. May be prolonged to 6 months or even longer. Duration depends on virulence of saliva and on site of wound in relation to richness of nerve supply and directness of nerve path to brain.
6. *Period of communicability*.—For 15 days in the dog before the onset of clinical symptoms and throughout the clinical course of the disease. Only slightly communicable in man.
7. *Susceptibility and immunity*.—Susceptibility general. Natural immunity is not known to exist in man or among the animals subject to the disease. Prophylactic antirabic treatment of infected humans will prevent development of the disease, with rare exceptions, if the treatment is begun soon after the injury and the site of the wound is not extensive in the distribution of the facial nerve.
8. *Prevalence*.—Rare in man; more likely to occur in males than females and most often in persons under 20 years of age. Worldwide distribution. Universally fatal in developed human cases. More prevalent among dogs and sometimes in wild carnivorous animals.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, confirmed by the presence of Negri bodies in the brain of the animal which has caused the injury, and by animal inoculations with material from the brain of such animal.

2. Isolation: None if the patient is under adequate medical supervision, and the immediate attendants are warned of possibility of inoculation by human virus.
 3. Concurrent disinfection of saliva of patient and articles soiled therewith.
 4. Terminal disinfection: Thorough cleaning.
 5. Quarantine: None.
 6. Immunization: Preventive vaccination of the patient after exposure to infection by inoculation.
 7. Investigation of source of infection: Search for the rabid animal and for any animals bitten by it. Carriers in animals are not known to occur.
- B. General measures:
1. Detention and examination of dogs suspected of having rabies.
 2. Immediate antirabic treatment of people bitten by dogs or by other animals suspected or known to have rabies, unless the animal is proved not to be rabid by subsequent observation or by microscopic examination of the brain and cord. The wound caused by any bite of a rabid animal should be treated at once to the depths with fuming nitric acid, with complete protection of the eye in the case of face bites.
 3. Education in the care of dogs, especially directed to dog owners and the police, including advice against shooting of rabid or suspected animals in the head lest the laboratory examination of the brain be rendered difficult or impossible. Dog owners should be impressed with the serious implications of keeping dogs in densely built up cities.
 4. **Control of dog population by requiring annual license, provision for the impounding and the humane destruction of all unlicensed dogs, quarantine of all dogs in areas where rabid animals have run at large.**

Rocky Mountain Spotted (or Tick) Fever

1. *Recognition of the disease.*—The characteristic rash with fever, the possibility of a tick bite, and a positive Weil-Felix test constitute the diagnostic criteria.
2. *Etiological agent.*—A gram-negative, intracellular micro-organism which has not been cultivated or filtered (*Dermacentorzenus rickettsi* Wolbach).
3. *Source of infection.*—Ticks.
4. *Mode of transmission.*—Bite of tick or mashing tick on skin.
5. *Incubation period.*—From 3 to about 10 days.
6. *Period of communicability.*—Not communicable from man.
7. *Susceptibility and immunity.*—Susceptibility general. One attack confers immunity. Active artificial immunization by Spencer-Parker vaccine has given very encouraging results.
8. *Prevalence.*—Probably occurs occasionally throughout tick-infested regions of the Western Hemisphere, but especially in the Rocky Mountain area. The season of occurrence is predominantly in the spring and early summer, corresponding to the appearance of adult ticks. The case fatality varies with the locality—90 percent in some areas and as low as 5 percent in others.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: All cases of the disease should be reported to the health authorities.
 2. Isolation: None.
 3. Concurrent disinfection: All ticks on the patient should be destroyed.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Investigation of source of infection: Determination of areas where there are infected ticks should be attempted wherever practicable.
 - B. General measures:
 1. Personal prophylaxis of persons entering the infected zones during the season of ticks by wearing tick-proof clothing, and careful search of the body for ticks which may have attached themselves.
 2. The destruction of ticks by clearing and burning vegetation on the lands in infected zones.
 3. The destruction of ticks on domestic animals by dipping.
 4. The destruction of small mammalian hosts of ticks, such as ground squirrels, chipmunks, and meadow mice.

Scarlet Fever

1. *Recognition of the disease.*—Sudden onset with nausea, vomiting, fever, and sore throat; rash (bright red spots on subcuticular flush) on second or third day. Cases occur without eruption, when provisional diagnosis may be made on sore throat, fever, vomiting, and history of exposure. The Schultz-Charlton blanching phenomenon may be used when rash has recently appeared: one-tenth to one-half cc convalescent serum or scarlet fever antitoxin is injected into skin where rash exists, which causes local blanching in 6 to 36 hours if rash is scarlatinal; absence of blanching, however, does not rule out scarlet fever.
2. *Etiological agent.*—A hemolytic streptococcus.
3. *Source of infection.*—Discharges from the nose, throat, ears, abscesses, or wound surfaces of sick or convalescent patients, and articles freshly soiled therewith. The nose and throat discharges of carriers may also spread the disease.
4. *Mode of transmission.*—Directly by contact with an infected person, indirectly by articles freshly soiled with discharges of an infected person, or through contaminated milk or milk products, not by skin desquamation.
5. *Incubation period.*—Two to seven days, usually three to four days.
6. *Period of communicability.*—Usually until 3 weeks from the onset of the disease, without regard to the stage or extent of desquamation, but until all abnormal discharges have ceased and all open sores or wounds have healed. Adults convalescent from scarlet fever appear to be less likely to transmit infection than are children. The infectious agent is more likely to be transmitted in colder seasons of the year.
7. *Susceptibility and immunity.*—Susceptibility is not general, particularly among adults. Unnoticed infections occur and produce immunity. Lasting immunity is usual after an attack, but not invariable, as second attacks occur. Artificial passive immunity of a few weeks may be developed by human convalescent serum. Artificial active immunity of uncertain duration can be developed in a considerable proportion of susceptible persons by the use of a suitable streptococcus antigen.
8. *Prevalence.*—Found in all parts of the world but unimportant in tropics and of low incidence in subtropical areas of North America. Commoner in urban than in rural areas. In cities about 80 percent of the cases occur in children under 10, and 60 percent in those under 5 years of age. About 5 percent of total deaths from scarlet fever occur in children under 1 year of age. Most common in winter and spring.
9. *Methods of control:*
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: By clinical symptoms.
 2. Isolation: In home or hospital, maintained in each case until the end of the period of communicability. If medical inspection is not available, isolation for 21 days from onset for uncomplicated cases.
 3. Concurrent disinfection: Of all articles which have been in contact with a patient and all articles soiled with discharges of the patient.
 4. Terminal disinfection: Thorough cleaning.
 5. Quarantine: Exclusion of exposed children and teachers from association with children, and food handlers from their work, until 7 days have elapsed since last exposure to a recognized case.
 6. Immunization: Exposed susceptibles, as determined by the Dick test, may be passively immunized by convalescent scarlet fever serum or scarlet fever antitoxin, under special circumstances.
 7. Investigation of source of infection: Search for individual source in contact cases or carrier, and in unpasteurized milk and milk products. It is important to discover undetected cases and convalescent and contact carriers.
 - B. General measures:
 1. Daily examination of exposed children and of other possibly exposed persons for a week after last exposure. Encourage removal of young susceptible contacts in the family to homes of adult friends for duration of communicable stage in the patient.

2. Schools should not be closed where daily observation of the children by a physician or nurse can be provided for.
3. In school and institutional outbreaks immunization of all exposed children with scarlet-fever toxin may be advisable.
4. In the presence of a sharp outbreak, modified isolation of persons with sore throat or upper respiratory tract infection, at least through the clinically active stage, particularly if exposure to scarlet fever patients be determined.
5. Education as to special danger of exposing young children to those exhibiting acute catarrhal symptoms of any kind.
6. Pasteurization of milk supply.

Septic Sore Throat

1. *Recognition of the disease.*—Acute sore throat appearing in epidemic outbreaks, often of a highly virulent character, and accompanied by various general septicemic manifestations. The onset is likely to be abrupt with chill, high temperature, and vomiting.
2. *Etiological agent.*—*Streptococcus* (hemolytic type).⁷
3. *Source of infection.*—The human naso-pharynx, usually the tonsils, any case of acute streptococcus inflammation of these structures being a potential source of infection, including the period of convalescence of such cases. The udder of a cow infected by the milker is a common source of infection. In such udders the physical signs of mastitis may be absent.⁸
4. *Mode of transmission.*—Direct or indirect human contact; consumption of raw milk contaminated by case or carrier or from an infected udder.
5. *Incubation period.*—One to three days.
6. *Period of communicability.*—In man, presumably during the continuance of clinical symptoms; in the cow, during the continuance of discharge of the streptococci in the milk, the condition in the udder tending to a spontaneous subsidence. The carrier stage may follow convalescence and persist for some time.
7. *Susceptibility and immunity.*—Susceptibility general, but somewhat less, in young children. Immunity, either natural or acquired, is rare and uncertain, if it occurs at all.
8. *Prevalence.*—Usually in epidemics, in any geographic area except where milk supply is pasteurized. Most cases in adolescents and adult milk drinkers. Most often in spring and early summer, but may occur at any season.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms. Bacteriological examination of the lesions or discharges from the tonsils and naso-pharynx may be useful.
 2. Isolation: During the clinical course of the disease and convalescence, and particularly exclusion of the patient from participation in the production or handling of milk or milk products.
 3. Concurrent disinfection: Articles soiled with discharges from the nose and throat of the patient.
 4. Terminal disinfection: Cleaning.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Search for cases and carriers among milkers and other handlers of unpasteurized milk, and for mastitis in milk cows.
 - B. General measures:
 1. Exclusion of suspected milk supply from public sale or use until pasteurized. The exclusion of the milk of an infected cow or cows in small herds is possible when based on bacteriological examination of the milk of each cow, and preferably the milk from each quarter of the udder at frequent intervals. Exclusion of human cases or carriers from handling milk or milk products.
 2. Pasteurization of all milk.
 3. Education in the principles of personal hygiene and avoidance of the use of common towel, drinking and eating utensils.

⁷ Bovine mastitis of staphylococcus origin may lead to epidemic outbreaks of gastro-intestinal disturbance in those who drink unpasteurized milk from a cow so infected.

⁸ Mastitis in the cow, due to bovine streptococci, is not a cause of septic sore throat in human beings unless a secondary infection of the udder by a human type of streptococcus takes place.

Smallpox

1. *Recognition of the disease.*—Onset sudden, usually with chills, a febrile stage of 3 or 4 days with dizziness, headache, backache, general pains, nausea, and vomiting. Macular eruption on third day changing in next 8 days to papule, vesicle, pustule, and crust, leaving a scar. Eruption general and symmetrical, especially on extensor surfaces; earliest on face and more on shoulders and chest than lower on trunk. Lesions are deep seated and have infiltrated base.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Lesions of the mucous membranes and skin of infected persons.
4. *Mode of transmission.*—By contact with persons sick with the disease. This contact need not be intimate, but aerial transmission through more than a few feet is unlikely; by articles or persons contaminated by discharges of the sick, including feces and urine, but for a brief time.
5. *Incubation period.*—Eight to sixteen days. (Cases with incubation period of 21 days are reported.)
6. *Period of communicability.*—From first symptoms to disappearance of all scabs and crusts.
7. *Susceptibility and immunity.*—Susceptibility universal. Acquired permanent immunity usually follows recovery from an attack of the disease. Second attacks are rare. Artificial immunity by vaccination is usually complete for 5 to 20 years, but relative susceptibility often occurs after 5 years.
8. *Prevalence.*—Distribution in sporadic or epidemic form; varies widely according to the immunity status of the population of an area and its exposure to infection from without. Cases occur most often in young adult males. In communities where few persons of any age have been vaccinated, the disease when it occurs will be chiefly among young children. Occurrence is most frequent in the winter and least in summer months. There is no regional or climatic limitation to its prevalence except as population groups are more or less well protected by vaccination.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms. The rapidly fatal or fulminating type and the very mild type may escape diagnosis until secondary cases appear.
 2. **Isolation: Hospital isolation in screened wards, free from vermin, until the period of infectivity is past.**
 3. Concurrent disinfection of all discharges: No article to leave the surroundings of the patient without boiling or equally effective disinfection.
 4. Terminal disinfection: Thorough cleaning and disinfection of premises.
 5. Quarantine: Isolation of all contacts until vaccinated with virus of full potency, and daily medical observation of these contacts until height of reaction is passed, if vaccination was performed within 24 hours of first exposure; otherwise for 16 days from last exposure.
 6. **Immunization: Vaccination.**
 7. Investigation of source of infection: The immediate prior case should be sought industriously, and cases of reported chicken pox in persons over 15 years of age carefully reviewed for error of diagnosis. Active cases of the disease without constitutional symptoms must be sought, also passive carriers recently in contact with cases, and exposed vaccinated persons who may have developed unrecognized forms of the disease, and thus be serving as sources of infection.
 - B. General measures:
 1. **General vaccination in early infancy, revaccination of children on entering a school, and of entire population when the disease appears in a severe form.**
 2. In order to avoid possible complications or secondary and subsequent infections at the site of vaccination, it is important that the vaccination insertion be as small and superficial as practicable, not over one-eighth inch in any direction, and that the site be kept dry and cool. The use of shields or other dressings

is to be condemned. The multiple pressure method is recommended. Primary vaccination as soon after 1 week of age as possible is desirable. The time of vaccination should be adjusted to avoid skin lesions elsewhere on the body, and in older children to avoid the warmer months. Particular care should be used in primary vaccinations beyond the age of infancy.

Syphilis

1. *Recognition of the disease.*—A disease acquired by contact or transmission in utero, running a chronic course with local and constitutional manifestations, usually in a definite sequence although of infinite variety. The lesion is an infectious granuloma, similar to that seen in tuberculosis and leprosy, in the acquired disease usually on mucous or mucocutaneous area of sexual contact. Confirmation of diagnosis is practicable and should be established in every instance by finding the spirochete in the lesions or discharges or by positive serological findings.
2. *Etiological agent.*—*Treponema pallidum* (*Spirochæta pallida*).
3. *Source of infection.*—Discharges from the lesions of the skin and mucous membranes, the blood of infected persons, and articles freshly soiled with such discharges or blood in which the *Treponema pallidum* is present.
4. *Mode of transmission.*—By direct personal contact with infected persons and indirectly by contact with discharges from lesions or with the blood of such persons, by sexual intercourse chiefly, by kissing, by dental and other surgical or technical accidents, congenitally from syphilitic mother through the placenta.
5. *Incubation period.*—About 3 weeks, minimum 10 days, occasionally 6 weeks or longer.
6. *Period of communicability.*—As long as the lesions are open upon the mucous membranes or skin, but practically limited to the first 2 years of the disease.
7. *Susceptibility and immunity.*—Susceptibility is universal, especially when moist surfaces of infected and exposed persons are brought into direct contact. Natural or acquired immunity is not known to exist. One attack and recovery does not protect against subsequent infection.
8. *Prevalence.*—Widespread in all regions of the world, regardless of race, climate, or geography, or of sex or age. Prevalence varies from less than one-half of 1 percent to 30 percent and over of local population groups, averaging probably about 5 percent of all the people of North America. Occurs in sporadic, local, or group epidemic, and commonly endemic form. Most commonly acquired by unmarried males between 20 and 40 years of age. Occurs in about 10 percent of all pregnant women. Most frequent among Negroes.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. *Recognition of the disease and reporting:* Clinical symptoms, confirmed by microscopical examination of discharges and by serum reactions. Diagnosis is essentially a laboratory problem and treatment should never be instituted without laboratory confirmation.
 2. *Isolation:* Essential for noncooperative patients at least until surface lesions have healed. No person in the communicable stage of syphilis should be permitted to engage in occupations of personal service in which he or she may infect others with syphilis, such as those of nurse or nursemaid, domestic servant, barber, hairdresser, chiropodist, manicurist, bath attendant, masseur, wet nurse. Sexual intercourse should be specifically warned against and so far as possible prevented for persons with syphilis until declared to be free from infection, by the physician responsible for treatment of the patient.
 3. *Concurrent disinfection of discharges and of articles soiled therewith.*
 4. *Terminal disinfection:* None.
 5. *Quarantine:* None.
 6. *Immunization:* None.
 7. *Investigation of source of infection:* Each case, particularly those cases of presumably recent origin, as the congenital form of the disease in infants, and first- and second-stage cases of the ac-

quired disease, should be traced to the probable source of infection, appropriate control and treatment of this spreader of disease instituted, and further exposed contacts examined for unsuspected or unreported cases.

B. General measures:

1. Provisions for accurate and early diagnosis and careful treatment of infected persons, with due consideration for privacy of record, consistent with effective control of the patient, search for source of infection, and provision for following cases until cured.
2. Education in matters of sexual hygiene, particularly as to the fact that continence in both sexes and at all ages is compatible with health and normal development.
3. Repression of commercial prostitution and associated use of alcoholic beverages, by means of the police or other competent authority.
4. Restriction of advertising of services or medicines for self-treatment of sex diseases, etc.
5. Elimination of the use of common towels, cups, and toilet articles from public places.
6. Serological as well as clinical examination for syphilis should be part of the routine prenatal supervision of the expectant mother and if she is found to be infected, antisyphilitic treatment should be begun if possible before the end of the fifth month of pregnancy.
7. Personal prophylaxis should be advised and be made available for use immediately after sexual intercourse to those who expose themselves to infection.

Tetanus

1. *Recognition of the disease.*—An acute infectious disease caused by the toxin of the tetanus bacillus; characterized by painful muscular contractions, first and principally of the masseter and neck muscles, and secondly those of the trunk; rarely the rigidity is confined to the region of the injury. A history and usually physical evidence of a wound of entry for infection is found. Bacteriological examination and mouse inoculation may be useful in confirmation of diagnosis.
2. *Etiological agent.*—Tetanus bacillus; *Clostridium tetani*.
3. *Source of infection.*—Animal manure, human feces, soil, and street dust.
4. *Mode of transmission.*—Wound infection.
5. *Incubation period.*—Commonly 4 days to 3 weeks, dependent somewhat upon the character, extent, and location of the wound. Longer periods of incubation have been noted. Subsequent operative interference or local tissue changes may initiate the activity of quiescent bacilli at even lengthy intervals after the original wound infection.
6. *Period of communicability.*—Patient not infectious except in rare instances where wound discharges are infectious.
7. *Susceptibility and immunity.*—Susceptibility general, but inoculated bacilli often fail to produce toxin. Artificial passive immunity for about 10 days' duration can be relied upon from the use of tetanus antitoxin. An active immunity may be produced by the use of tetanus toxoid.
8. *Prevalence.*—World-wide distribution, following wound infection. Most frequent in North America among young males and in summer. Prevalent especially following wounds contaminated with manured soil.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms may be confirmed bacteriologically.
 2. Isolation: None.
 3. Quarantine: None.
 4. Immunization: Ordinarily a subcutaneous injection of tetanus antitoxin (1,500 units) given on the day of the wound. A second injection within 10 days may be desirable in certain instances.
 5. Investigation of source of infection: Of only academic interest, as the infecting organism is widely spread, especially through animal feces, in all inhabited places.

6. Concurrent disinfection: None.

7. Terminal disinfection: None.

B. General measures:

1. Educational propaganda such as "safety first" campaign, and "safe and sane Fourth of July" campaign.

2. **Prophylactic use of tetanus antitoxin** where wounds have been acquired in regions where tetanus is prevalent, and in all cases where contaminated material may be embedded in the wound.

3. **Removal of all foreign matter as early as possible from all wounds.**

Trachoma

1. *Recognition of the disease.*—A specific destructive chronic inflammation of the conjunctiva, characterized by formation of granulations, either papillary or follicular, leading ultimately to formation of scar tissue and deformity of the eyelids. Microscopic examination of the conjunctival discharges and scrapings cannot be relied upon as an aid to diagnosis, but may exclude other infections.

2. *Etiological agent.*—Undetermined.

3. *Source of infection.*—Secretions and purulent discharges from the conjunctivae and adnexed mucous membranes of the infected persons.

4. *Mode of transmission.*—By direct contact with infected persons and indirectly by contact with articles freshly soiled with the infective discharges of such persons.

5. *Incubation period.*—Undetermined.

6. *Period of communicability.*—During the persistence of lesions of the conjunctivae and of the adnexed mucous membranes or of discharges from such lesions.

7. *Susceptibility and immunity.*—Susceptibility is general, greater in children than in adults and increased by malnutrition, chronic irritation by dust, wind, exposure to the sun, and by carelessness of personal cleanliness. Natural or acquired immunity is not known to occur.

8. *Prevalence.*—Not uncommon in immigrants from southern and eastern Europe. Incidence high among mountain population of southern Appalachians, and to an extent of 5 to 25 percent among plains and Pueblo Indians of the United States. In Canada the main focus is in southern Manitoba; rare in white, native born Canadians; in Indians, cases are distributed from Ontario westward through the prairie provinces and into British Columbia. Cases most common among children but may occur and persist at any age.

9. Methods of control:

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms.

2. Isolation: Exclusion of the patient from general school classes. Isolation of the patient is not necessary if he is properly treated and instructed in precautions against spread of secretions of the eye to others by common use of articles.

3. Concurrent disinfection of discharge and articles soiled therewith.

4. Terminal disinfection: None.

5. Quarantine: None.

6. Immunization: None.

7. Investigation of source of infection: Careful search should be made of persons in any way intimately related or exposed to the patient, particularly members of the household, and play and schoolmates. Carriers are not known to occur, but apparently healed scars of old lesions may be the site of reactivity and become sources of infection.

B. General measures:

1. **Search for cases by examination of school children, or immigrants, and among the families and associates of recognized cases; in addition, search for acute secreting disease of conjunctivae and adnexed mucous membranes, both among school children and in their families, and treatment of such cases until cured.**

2. **Elimination of common towels and toilet articles from public places.**

3. Education in the principles of personal cleanliness and the necessity of avoiding direct or indirect transference of body discharges.
4. Control of public dispensaries where communicable eye diseases are treated, and creation of special treatment classes where the disease prevails.
5. Exclusion of infected immigrants at national boundaries, or preferably at foreign port of embarkation.
6. Routine examination of eyes of children admitted to institutions, or in industrial camps where the disease is prevalent.
7. Under certain conditions in areas of widespread prevalence of the disease, the prophylactic use of solutions of zinc sulphate (1 percent) or copper sulphate (0.5 percent) may prove a valuable protective measure for children.

Trichinosis

1. *Recognition of the disease.*—In human beings confined to persons who have eaten raw or insufficiently cooked fresh pork products, occasionally bear meat, and characterized by onset of variable intensity according to the amount of infested meat eaten and the abundance of the trichinae in the meat. The symptoms of invasion may be mild or of severe gastro-intestinal disturbance. Muscle soreness or pain, edema of face and eyelids, weakness and distress are accompanied by a marked eosinophilia. Microscopic examination of the stools for adult worms, and of teased specimen of deltoid muscle for suspected embryos is helpful. Occasionally examination of the uncooked pork will reveal the parasites.
2. *Etiological agent.*—*Trichinella spiralis*.
3. *Source of infection.*—Uncooked or insufficiently cooked pork, rarely meat of other animals.
4. *Mode of transmission.*—Direct from meat to man through consumption of undercooked infected pork products.
5. *Incubation period.*—Variable; usually about 1 week.
6. *Period of communicability.*—Disease is not transmitted by human host to man.
7. *Susceptibility and immunity.*—Susceptibility is general. Neither natural nor acquired immunity is known to occur.
8. *Prevalence.*—World-wide, but uncommon. No selection by age, sex, race, region, season, or climate except as these affect the custom of eating the insufficiently cooked flesh of infested hogs or other animals.
9. *Methods of control:*
 - A. The infested individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, confirmed by microscopical examination of blood for eosinophilia, and about the third week for encysted larvae in muscle tissue.
 2. Isolation: None.
 3. Concurrent disinfection: Sanitary disposal of the feces of the patient.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Every effort should be made to trace each case to a definite or probable source of raw or undercooked pork. Where hogs are fed on, or have access to, human offal, and human beings eat insufficiently cooked fresh pork products, there is an endless sequence of infestation and reinfestation of hog and human.
 - B. General measures:
 1. Inspection of slaughtered hogs for the detection of trichinosis (rarely found unless muscles are heavily infested).
 2. Thorough cooking of all pork products at a temperature of 160° F. or over.
 3. Refrigeration of pork at 5° F. for 20 days.
 4. Extermination of rats, especially around meat shops and slaughter houses and hog pens.
 5. Cooking swill and offal which is to be fed to hogs.

Tuberculosis, Pulmonary

1. *Recognition of the disease.*—Evidence of present or past infection in the absence of clinical symptoms can be determined by a variety of specific tuberculin reactions, among which the Mantoux intradermal test is the most reliable. In the presence of early constitutional symptoms with or without pulmonary signs, the existence or location of pulmonary or other thoracic lesions can best be revealed by the X-ray. When fever, cough, loss of appetite and weight, and physical signs on auscultation and percussion are found, the pulmonary lesion is already well developed. Discovery of tubercle bacilli in the sputum confirms the diagnosis not infrequently in early cases but is an evidence usually of a well-advanced lesion.^{*}
2. *Etiological agent.*—Tubercle bacillus (human), *Mycobacterium tuberculosis (hominis)*. Tubercle bacilli of bovine type have been isolated from pulmonary lesions in man; avian type rarely.
3. *Source of infection.*—The specific micro-organism present in the discharges, or articles freshly soiled from the discharges, from any open tuberculosis lesions, the most important discharge being sputum. Of less importance are discharges from the intestinal and genitourinary tracts, or from lesions of the lymph nodes, bone, and skin.
4. *Mode of transmission.*—Usually through the discharges of the respiratory tract, occasionally through those of the digestive tract, by direct or indirect contact with infected persons, by means of coughing, sneezing, or other droplet infection, by kissing, by the use of contaminated eating and drinking utensils, and possibly by contaminated flies and dust. Infection rarely occurs from casual contact, but usually results from the continued type of exposure characteristic of family relationships.
5. *Incubation period.*—Variable and dependent upon the type of the disease.
6. *Period of communicability.*—As long as the specific micro-organism is eliminated by the host. Commences when a lesion becomes an open one, i. e., discharging tubercle bacilli, and continues until it heals or death occurs. The degree of communicability varies with the number and virulence of the bacilli discharged, the frequency of exposure, and the susceptibility of the persons exposed.
7. *Susceptibility and immunity.*—Susceptibility is general; in children greater than in adults; in aboriginal races more than among races long exposed to the disease; in the undernourished, fatigued, and neglected more than in the well fed and well cared for; in those exposed to dusty trades, and in particular to silica dust, more than in persons with outdoor occupations in clean air. Resistance of some degree is developed by age and by the maintenance of good nutrition.
8. *Prevalence.*—Among the most common communicable diseases of man, with but slight variations of occurrence of infection, although considerable variation in mortality rate according to race. At present in some modern occidental nations its incidence as a disease has fallen markedly, and both incidence and deaths continue to fall from year to year. Infection occurs more commonly in childhood (from infancy to adolescence) than at later ages. Mortality highest among males between 25 and 40 and among females about 5 years earlier. Aboriginal races when first exposed develop the disease in a rapidly fatal form.

^{*} Tuberculosis in children: A distinction should be made between the childhood type and the adult type of tuberculosis because of medical and epidemiological differences. "The childhood type of tuberculosis is the name adopted to describe the diffuse or circumscribed lesions in the lungs and associated tracheobronchial lymph glands that result from a first infection of the pulmonary tissue with the tubercle bacillus" (Diagnostic Standards, National Tuberculosis Association). The chief difference between the childhood type and the adult type is that the former represents the reactions caused by the tubercle bacillus in unsensitized tissue while the latter is a reinfection of sensitized tissue. The childhood type is usually benign, but is of significance because it is often the precursor of the adult type of pulmonary tuberculosis.

From the medical standpoint, the childhood type of tuberculosis is of the greatest significance during the first 3 years of life, and from the ages of 12 to 18 years. In school children it can be detected by routine application of the tuberculin test and X-rays of the positive reactors. School children with this type of tuberculosis do not usually need hospitalization if in good physical condition, living in a satisfactory home, and no longer exposed to a source of infection. They should have an annual roentgenogram of the chest for the remainder of their school life to detect further signs of advancing tuberculosis. If such routine examination of school children includes examination of family contacts of all cases of childhood type of tuberculosis it becomes an effective method for the discovery of the cases of pulmonary tuberculosis in adults who are unrecognized sources of infection.

9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: By thorough physical examination supplemented by use of the X-ray and tuberculin testing when necessary and confirmed by bacteriological examination of sputum and other materials. Early discovery in contacts, particularly in family groups exposed to an open case of tuberculosis ("positive" sputum), is of great importance.
2. Isolation of such "open" cases as do not observe the precautions necessary to prevent the spread of the disease may prove advisable. A period of hospital or sanatorium treatment is very desirable in all cases to remove the patient as a focus of infection in his home, and to teach him the hygienic essentials of tuberculosis control as well as to increase his chances of recovery.¹⁰
3. Concurrent disinfection: Of sputum and articles soiled with it. Particular attention should be paid to prompt disposal or disinfection of sputum itself, of handkerchiefs, cloths, or paper soiled therewith, and of eating utensils used by the patient.
4. Terminal disinfection: Cleaning and renovation.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: In spite of the length and uncertainty of the incubation period and the numerous possible sources of infection, a systematic effort should be made to discover the probable source in each case and to identify other cases of the same origin, by thorough examination by X-ray, physical examination, and where appropriate by tuberculin test of family and household contacts.

B. General measures:

1. Education of the public in regard to the danger of tuberculosis, the mode of spread and the methods of control, with especial stress upon the danger of exposure and infection in early childhood.
2. Provision of dispensaries and visiting-nurse service for discovery of early cases and supervision of home cases.
3. Provision of adequate sanatorium facilities for isolation and treatment of active cases. Two beds per annual tuberculosis death in the community is an adequate ratio.
4. Provision of open-air schools and preventoria for infected children not yet showing clinical signs of the disease.
5. Improvement of housing conditions and nutrition of the poor.
6. Elimination of silica dust in certain industrial establishments.
7. Improvement of habits of personal hygiene and betterment of living conditions among the underprivileged.
8. Separation of babies from tuberculous mothers at birth.
9. Pasteurization of all milk supplies.
10. Eradication of tuberculosis in cattle.
11. Where the disease is endemic and the incidence high particularly among little children, the routine use of B. C. G. vaccine in infancy for active immunization has been suggested.

Tuberculosis, Other than Pulmonary

1. *Recognition of the disease.*—By local manifestations; by constitutional reactions, by specific reactions, and by microscopic identification of the tubercle bacillus in the lesions or their discharges.
2. *Etiological agent.*—Tubercle bacillus (human and bovine), *Mycobacterium tuberculosis (hominis et bovis)*.
3. *Source of infection.*—Discharges from mouth, nose, bowels, and genito-urinary tract of infected human beings; the discharging lesion of bones, joints, and lymph glands; articles freshly soiled with such discharges; milk from tuberculous cattle.
4. *Mode of transmission.*—By direct contact with infected persons, by contaminated food, and possibly by contact with articles freshly soiled with the discharges of infected persons.

¹⁰ "Collapse therapy" is often of value in appropriate cases of the disease in shortening the period of communicability, as well as in reducing the case fatality.

5. *Incubation period*.—Unknown.
6. *Period of communicability*.—Until discharging lesions are healed.
7. *Susceptibility and immunity*.—(See statement under this heading in Pulmonary tuberculosis.)
8. *Prevalence*.—Much less common than the pulmonary form and more rapidly falling in incidence, representing about 10 percent of total cases and deaths from the disease. Especially common in infants and young children where intimately exposed to parent infection and to bovine infection through unpasteurized milk from tuberculous cattle.
9. *Methods of control*:
 - A. The infected individual, contacts and environment.
 1. Recognition of the disease and reporting: Clinical signs and symptoms confirmed by bacteriological and serological examinations.
 2. Isolation: None.
 3. Concurrent disinfection: Discharges and articles freshly soiled with them.
 4. Terminal disinfection: Cleaning.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Search should be made for possible original source in family, household, or other intimate contacts, and to discover previously unrecognized cases of similar origin, such a search to be aimed at discovery of infected but latent or arrested cases as well as those showing an active process. Special inquiry and investigation should be made to discover possible source of bovine tubercle infection where unpasteurized milk has been used in the family or particularly used uncooked, by the patient.
 - B. General measures:
 1. Pasteurization of milk and milk products and inspection of meats.
 2. Eradication of tuberculosis in dairy cattle.
 3. Patients with open lesions should be prohibited from handling foods.
 4. Adequate hospital, sanatorium, preventorium, and outpatient facilities for discovery, control, and clinical management.

Tularaemia

1. *Recognition of the disease*.—Whether the disease is acquired by the bite of the blood-sucking horse fly or the wood tick or from an infected abrasion or skin trauma or infected conjunctiva, or by ingestion of insufficiently cooked meat of infected rabbits, the onset is sudden, with pains and fever, and the patient is usually prostrated and confined to bed. If the disease follows a bite or a conjunctival infection or an infection through the skin, the lymph glands draining the area become swollen and tender and suppurate in about half the cases. The fever is of 3 to 4 weeks' duration, and the convalescence slow. The clinical diagnosis may be confirmed by animal inoculation, isolation of cultures, and agglutination reactions.
2. *Etiological agent*.—*Bacterium tularensis* (*Pasteurella tularensis*).
3. *Source of infection*.—Wild rabbits and hares, horse fly (*Chrysops discalis*), wood tick (*Dermacentor andersoni* and *Dermacentor variabilis*), woodchuck, coyote, muskrat, opossum, tree squirrel, quail, skunk, water rat of Europe (*Arvicola amphibus*), cat, deer, dog, fox, hog, sage hen, and bull snake.
4. *Mode of transmission*.—By bites of infected flies and ticks and by inoculation through handling infected animals, as in skinning, dressing, or performing necropsies on infected animals, or by fluids from infected flies, ticks, rabbits, and woodchucks. Ingestion of insufficiently cooked rabbit meat. Rare cases occur from bites of coyotes, skunks, hogs, cats, and dogs, where the mouth of the animal was presumably contaminated from eating infected rabbits.
5. *Period of incubation*.—From 24 hours to 10 days, average slightly more than 3 days.
6. *Period of communicability*.—There is no authentic record of transfer of the disease from man to man. The infection has been found in the blood of man during the first 2 weeks of the disease; in conjunctival scrapings up to 17 days; in the primary lesion on the finger up to 21 days; in the sputum on the twelfth day; in lymph glands up to 5 months; in ascitic fluid (taken

during life) 3 months after onset; in pleural fluid 4 months after onset; in spinal fluid 16 days after onset; in the spleen taken at autopsy up to 30 days. Flies are infective for 14 days; ticks throughout their lifetime. Refrigerated rabbits kept constantly frozen at -15°C . may remain infective for 3 years.

7. *Susceptibility and immunity*.—All ages are susceptible. Permanent immunity follows recovery from an attack. An immune person may acquire through an abrasion on his hand and by contact with virulent material, a local tularaemic papule which harbors virulent organisms but does not cause notable constitutional reaction.
8. *Prevalence*.—The disease has been found in every State of the United States except Vermont and Connecticut, also in Canada, Japan, Russia, Norway, and Sweden. It occurs every month of the year, but especially during the hunting season. The case fatality is about 5 percent.
9. *Methods of control*:
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: Human cases should be reported to the health department.
 2. Isolation: None.
 3. Concurrent disinfection: Disinfection of discharges from the ulcer, lymph glands, or conjunctival sac.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection should be undertaken in each case.
 - B. General measures:
 1. Avoidance of the bites of, or handling of, flies and ticks when working in the infected zones during the seasonal incidence of blood-sucking flies and ticks.
 2. The use of rubber gloves by persons engaged in dressing wild rabbits wherever taken, or when performing necropsies on infected laboratory animals. Employment of immune persons for dressing wild rabbits or conducting laboratory experiments. Thorough cooking of meat of wild rabbits.

Typhoid Fever

1. *Recognition of the disease*.—A general infection with the typhoid bacillus, characterized by a continued fever, and by involvement of the lymphoid tissues especially with enlargement and often ulceration of Peyer's patches, enlargement of the spleen, usually rose spots on the trunk, diarrheal disturbance, and a variety of severe constitutional disturbances accompanying parenchymatous involvement of various viscera. The infecting micro-organism can be found in the blood, the feces, and the urine.
2. *Etiological agent*.—Typhoid bacillus, *Eberthella typhi*.
3. *Source of infection*.—Bowel discharges and urine of infected individuals. Healthy carriers are common.
4. *Mode of transmission*.—Conveyance of the specific micro-organism by direct or indirect contact with a source of infection. Among indirect means of transmission are contaminated water, milk, and shellfish, and probably flies.
5. *Incubation period*.—From 3 to 38 days, usually 7 to 14 days.
6. *Period of communicability*.—From the appearance of prodromal symptoms, throughout the illness and relapses during convalescence, and until repeated bacteriological examinations of the discharges show continuous absence of the infecting organism.
7. *Susceptibility and immunity*.—Susceptibility is general. Natural immunity exists to some extent in adults. Acquired immunity of permanent duration usually follows recovery from the disease. Artificial active immunity of probably 2 years' duration can be developed by the use of typhoid vaccine.
8. *Prevalence*.—Widespread throughout the world regardless of race, age, sex, climate, or geography. Formerly in most large cities of North America and in many extensive rural areas in endemic and epidemic form, and still endemic in some rural areas of the southern United States but commonly now occurring in sporadic cases and as small contact and carrier epidemics. Steadily falling in incidence, particularly in all urban areas supplied

with water of a sanitary quality and pasteurized milk, and where human fecal waste is disposed of without polluting water supplies, food, or surface of the soil.

9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting: Clinical symptoms confirmed by specific agglutination test and bacteriological examination of blood, bowel discharges, or urine.
2. Isolation: In fly-proof room, preferably under hospital conditions, of such cases as cannot command adequate sanitary environment and nursing care in their homes. Release from isolation should be determined by two successive negative cultures of stool and urine specimens collected not less than 24 hours apart.
3. **Concurrent disinfection: Disinfection of all bowel and urinary discharges and articles soiled with them.**
4. Terminal disinfection: Cleaning.
5. Quarantine: None.
6. Immunization: Of susceptibles in the family or household of the patient who have been exposed or may be exposed during the course of the disease.
7. Investigation of source of infection: The actual or probable source of infection of every case should be determined by searching for common and individual sources (1) polluted water, milk, shellfish, and other food supplies, (2) unreported cases and carriers.

B. General measures:

1. **Protection and purification of public water supplies.**
2. **Pasteurization of public milk supplies.**
3. Limitation of collection and marketing of shellfish to those from approved sources.
4. **Sanitary disposal of human excreta.**
5. Supervision of other food supplies, and of food handlers.
6. Prevention of fly breeding.
7. Extension of immunization by vaccination to persons subject to unusual exposure by reason of occupation or travel, to those living in areas of high endemic incidence of typhoid fever and to those for whom the procedure can be systematically and economically applied, as in the military forces and institutional populations.
8. Discovery and supervision of such typhoid carriers, and their exclusion from the handling of foods, as epidemiological and bacteriological evidence indicate are of importance.
9. Exclusion of suspected milk supplies on epidemiological evidence pending discovery and elimination of the cause of contamination of the milk.
10. Exclusion of suspected water supply, until adequate protection or purification is provided unless all water used for toilet, cooking, and drinking purposes is boiled before use.
11. Education of the general public and particularly of food handlers, concerning the sources of infection, and modes of transmission of the disease.
12. Instruction of convalescents and chronic carriers in personal hygiene, particularly as to sanitary disposal of fecal waste, and handwashing after use of toilet, and restraint from acting as food handlers.

Typhus Fever

1. *Recognition of the disease.*—Whether in the classical and severe epidemic form of the louse-transmitted disease or in the mild flea-borne and sporadic type, the onset is variable, often being sudden and marked by headache, chills, fever, and general pains, and a macular eruption on the fifth or sixth day, toxemia, and a quite definite course terminating in rapid lysis after 12 to 21 days. A positive Weil-Felix reaction is valuable as confirmation of the diagnosis.
2. *Etiological agent.*—*Rickettsia prowazeki* is believed to be the causative agent.
3. *Source of infection.*—The only known source is the blood of infected persons or infected rats.

4. *Mode of transmission.*—The infectious agent is transmitted from man to man by lice (*Pediculus corporis*) and from rat to rat or man by fleas (*Xenopsylla cheopis*).
5. *Incubation period.*—From 5 to 20 days, most often 12 days.
6. *Period of communicability.*—In the presence of lice, highly communicable until 36 hours have elapsed after the temperature reaches normal.
7. *Susceptibility and immunity.*—Susceptibility is general. One attack confers immunity, which is not always permanent.
8. *Prevalence.*—Widespread. Flea-borne typhus predominantly in late summer and fall; louse-borne predominantly in winter and spring. The case fatality of flea-borne typhus is 2 percent, and of louse-borne typhus 20 to 40 percent.
9. *Methods of control:*
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: Cases should be promptly reported to the health authorities.
 2. Isolation: In a vermin-free room.
 3. Concurrent disinfection: Destroy all lice and louse eggs on the clothing or in the hair of the patient.
 4. Terminal disinfection: None.
 5. Quarantine: In the presence of lice, exposed susceptibles should be quarantined for 14 days after last exposure.
 6. Immunization: Methods not yet available for general application.
 7. Investigation of source of infection: Particular attention should be paid to patient's contact with rats, and with louse-infected persons or clothing.
 - B. General measures: The elimination of rats.
 - C. Epidemic measures: Delousing of persons, clothing, and premises.

Undulant Fever (Brucellosis)

1. *Recognition of the disease.*—A general infection with gradual or insidious onset and characterized by irregular fever of uncertain but often prolonged duration, profuse sweating, chills (or chilliness), pain in joints and muscles. Agglutination test and identification of the infecting micro-organism in the blood, tissues, or discharges of the patient are valuable aids in diagnosis.
2. *Etiological agent.*—*Brucella melitensis* (*Alkaligenes melitensis*, *Micrococcus melitensis*); *Brucella abortus* (*Alkaligenes abortus*); *Brucella suis*.
3. *Source of infection.*—The tissues, blood, milk, and urine of infected animals, especially goats, cattle, and swine.
4. *Mode of transmission.*—By ingestion of milk from infected animals and by direct contact with infected animals or animal products.
5. *Incubation period.*—Six to 30 days or more.
6. *Period of communicability.*—Practically not communicable from person to person. From the onset of the disease until the micro-organism is no longer found in the urine, usually 90 days, with a range of 20 to 300 days.
7. *Susceptibility and immunity.*—Susceptibility is not general, as most persons have some degree of natural immunity, especially to the abortus varieties of the infecting agent, or they have acquired such partial immunity by ingestion of small doses of these. Immunity uncertain.
8. *Prevalence.*—Occurs more often in males than in females, and particularly in persons whose occupation brings them into relation with milk cows or goats, and in persons using unpasteurized milk of cows or goats. Found in every one of the United States and in Canada and affecting persons of any race. Occurs most often in the months of May to October. Many cases of a mild type doubtless occur without record.
9. *Methods of control:*
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: The clinical picture and particularly the undulant character of the fever, supplemented by exact determination through the use of agglutination tests and bacteriological examination of the blood and urine for the infecting micro-organism.
 2. Isolation: None.

3. Concurrent disinfection: Unnecessary in presence of ordinary sanitary precautions.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Investigation of source of infection: Human cases should be traced to the common or individual source of infection, almost universally infected domestic goats, or cows, or the unpasteurized milk products from these.

B. General measures:

1. Pasteurization of milk whether from cows or goats.
2. Search for infection among livestock by agglutination reaction and elimination of infected animals from the herd by segregation or slaughter.
3. Education of the public and particularly workers in slaughter houses, packing houses, and butcher shops, as to the nature of the disease, the mode of transmission, and the danger of handling carcasses or products of infected animals.

Whooping Cough (Pertussis)

1. *Recognition of the disease.*—An acute infection involving trachea and bronchi and characterized by an initial catarrhal stage with slight fever, and a paroxysmal stage in which the paroxysmal cough ends in a sonorous or whooping inspiration often accompanied by vomiting. Identification of the Bordet-Gengou bacillus in the tenacious tracheo-bronchial mucus can be made in a high percentage of cases during the early and paroxysmal stages of the disease before the whoop develops, and less readily from the fourth to the sixth week after the onset of the disease by the use of special cough culture plates held before the mouth during a spontaneous or induced paroxysm of coughing. A definite lymphocytosis in the pre-paroxysmal stage may assist the clinical diagnosis.
2. *Etiological agent.*—Pertussis bacillus of Bordet and Gengou, *Hemophilus pertussis*.
3. *Source of infection.*—Discharges from the laryngeal and bronchial mucous membranes of infected persons.
4. *Mode of transmission.*—Contact with an infected person, or with articles freshly soiled with the discharges of such person.
5. *Incubation period.*—Commonly 7 days, almost uniformly within 10 days, and not exceeding 16 days.
6. *Period of communicability.*—Particularly communicable in the early catarrhal stage before the characteristic whoop makes a clinical diagnosis possible. The catarrhal stage occupies from 7 to 14 days. After the characteristic whoop has appeared, the communicable period continues certainly for 3 weeks. Even if the spasmodic cough with whoop persists longer than this it is most unlikely that the infecting organism can be isolated from the discharges. The communicable stage must be considered to extend from 7 days after exposure to an infected individual to 3 weeks after the development of the characteristic whoop.
7. *Susceptibility and immunity.*—Susceptibility is general. There is no natural immunity. The greatest susceptibility is in children between 6 months and 5 years of age, after which there is some decrease. One attack confers a definite and prolonged immunity, although second attacks do occur. A brief passive immunity may be conveyed to young children by convalescent serum or adult whole blood. Artificial immunity is still of doubtful value and as yet of no definite reliance. Susceptibility is apparently higher in females at all ages than in males.
8. *Prevalence.*—Very prevalent, and a common disease among children everywhere regardless of race, climate, or geographical location. About half the reported cases in cities are in children under 5 years of age, and 90 percent in children under 10. Incidence and fatality rates are higher among females. Somewhat less prevalent in tropical than in temperate climates. Seasonal incidence variable, but mortality higher usually in spring months in North America. Cyclical occurrence irregular.
9. *Methods of control:*
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting: Clinical symptoms, supported by a differential leucocyte count, and confirmed where possible by bacteriological examination of bronchial secretions.

A positive diagnosis may be made by bacteriological examination of laryngeal discharges as early as 1 week before the development of the characteristic cough.

2. **Isolation:** Separation of the patient from susceptible children, and exclusion of the patient from school and public places for the period of assumed infectivity. It is of particular importance to protect children under 3 years of age against contact with any other children with cough and fever, of whatever origin, and especially if whooping cough is suspected or is known to be prevalent. Isolation of children over 2 years of age is impracticable, and even in those under 2 should not be insisted upon at the expense of fresh air in the open if weather permits.
 3. **Concurrent disinfection:** Discharges from the nose and throat of the patient and articles soiled with such discharges.
 4. **Terminal disinfection:** Cleaning of the premises used by the patient.
 5. **Quarantine:** Limited to the exclusion of nonimmune children from school and public gatherings for 10 days after their last exposure to a recognized case. This precaution may be omitted if exposed nonimmune children are observed with care by a physician or nurse on their arrival at school each day for 10 days after their last exposure to a recognized case.
 6. **Immunization:** Use of prophylactic vaccination is recommended by some observers, but is still considered to be of doubtful reliability.
 7. **Investigation of source of infection:** An effort should be made to discover undiagnosed and unreported cases, with the main object in view of protecting young children from exposure, and thus reducing the mortality. Postponement of the age of infection at least until school age and great care in the management of the disease in young children offer some hope of reducing deaths from whooping cough although reduction of incidence by any means appears unlikely. Carriers in the exact sense of this term are not known to occur.
- B. **General measures:** Education in habits of personal cleanliness and in the dangers of association or contact with those showing catarrhal symptoms with cough.

Yellow Fever

1. **Recognition of the disease.**—Clinical diagnosis usually rests upon sudden onset, fever, prostration, slow pulse in relation to body temperature, severe headache and backache, congestion of mucous membranes, black vomit, bleeding gums, and late jaundice, with brief duration of illness. Pronounced albuminuria and leukopenia are characteristic. A history of possible bites of infected mosquitoes is corroborative but absence of such or even failure to find *Aedes aegypti* mosquitoes in the vicinity does not necessarily exclude the diagnosis. Almost symptomless and certainly unrecognizable cases of this infection occur among Negro races in Africa.
2. **Etiological agent.**—A specific filterable virus.
3. **Source of infection.**—The blood of infected persons.
4. **Mode of transmission.**—By the bite of infected *Aedes aegypti* mosquitoes, and of a few allied species. (It is not yet certain that some other suctorial insect may not be capable of acting as the transmitter.)
5. **Incubation period.**—Three to six days, rarely longer.
6. **Period of communicability.**—First 3 days of the fever, possibly 4. High degree of communicability where infected mosquitoes abound and there are many susceptible persons.
7. **Susceptibility and immunity.**—Recovery from an attack of the disease is regularly followed by immunity, apparently for life. There is no natural immunity. Artificial immunity may be developed by the use of convalescent serum. The duration of this is brief. Artificial active immunity may be developed by the use of modified living virus and human immune serum. The duration of this is uncertain but it apparently lasts for several years.
8. **Prevalence.**—Very rare in North America and insular possessions. Not known in the Pacific Basin. No case in North America or Puerto Rico for many years.

9. *Methods of control:*

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting. Clinical symptoms.
2. Isolation: Isolate from mosquitoes in a special hospital ward or thoroughly screened room. It is necessary that the room or ward should be freed from mosquitoes by fumigation, trapping, or highly responsible collection and destruction of the insects. Isolation necessary only for the first 4 days of the fever.
3. Concurrent disinfection: None.
4. Terminal disinfection: None, except for the purpose of destroying mosquitoes in the house occupied by the patient and in the nearest neighboring dwellings, usually best by gaseous fumigation.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Human carriers are not known to exist. Search for undiscovered mild and unreported cases of illness resembling yellow fever, and systematic testing of immunity in groups related in time and proximity to the case in question are of epidemiological importance. Search for the *Aedes aegypti* mosquito and other species believed to be capable of transmitting the infection should be particularly thorough in the vicinity of places of residence, work, or travel of known cases of the disease.

B. General measures:

1. Eliminate breeding of *Aedes aegypti* mosquito throughout the community by organized service of inspection and sanitary control.
2. An inspection service for discovery of those ill with the disease is desirable whether the disease occurs in the classical, mild, or atypical form.

Supplementary List B

Communicable diseases or infestations occurring in the United States, and Canada, and in the insular possessions, but for which notification to the health authorities is not everywhere required.

Ascariasis.	Pediculosis.
Coccidioidal granuloma.	Rat-bite fever (sodoku).
Common cold.	Relapsing fever.
Filariasis.	Ringworm.
Icterohemorrhagic jaundice (Weil's disease).	Scabies.
Impetigo contagiosa.	Schistosomiasis.
Lymphogranuloma venereum (inguinale) and climatic bubo.	Vincent's infection (angina, stomatitis).
	Yaws.

Ascariasis

1. *Recognition of the disease.*—Unless the worm presents itself at some body orifice or its presence can be inferred from evidence of its location in the tissues of the body, the clinical picture is of little if any diagnostic value. The diagnosis usually depends on identifying ascaris eggs in the stools.
2. *Etiological agent.*—The large round worm of man, *Ascaris lumbricoides*.
3. *Source of infestation.*—Excreta of infested persons, particularly children, and articles soiled with such excreta in and about houses lacking facilities for sanitary disposal of human wastes.
4. *Mode of transmission.*—By direct or indirect transmission of the embryonated eggs from soil or other polluted material to the mouth. The embryonated eggs hatch in the intestinal canal, penetrate the wall, and reach the lungs by the circulatory system. Most of those which reach the lungs in the blood stream move into the air passages, throat, and stomach, and thence to the small intestines. Pollution of soil may be carried by shoes into houses, conveyances, and to some distances.
5. *Incubation period.*—Worms reach maturity in the body about 2 months after infestation.

6. *Period of communicability*.—As long as mature female worms live in the intestine. The production of about 200,000 eggs a day permits a wide spread of fecal pollution even when the infestation is light.
7. *Susceptibility and immunity*.—Susceptibility is general and even relative immunity to repeated infestation cannot be relied upon.
8. *Prevalence*.—High incidence of infestation is found where low standards of personal hygiene, lack of sanitary essentials, poverty, and ignorance create the conditions necessary for pollution of soil in the immediate vicinity of houses. Children of the runabout and early school age are likely to be more frequently and more heavily infested than are older children and adults.
9. *Methods of control*:
 - A. The infested individual, contacts, and environment:
 1. Recognition of the disease on stool examinations in cases with clinical symptoms and in carriers exhibiting no symptoms of infestation.
 2. Isolation: None.
 3. Concurrent disinfection: Sanitary disposal of feces, and washing hands in soap and water after defecating and before eating.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Isolation: None.
 7. Investigation of source of infestation: Individual and environmental sources of infestation should be sought for in the persons and premises of the patient's family particularly.
 - B. General measures:

Education in, and where practicable, requirement of, sanitary disposal of human excreta, to reduce to a minimum the possibility of pollution of the surface of the ground, particularly where young children are certain to play near their home.

Make it easy for children to learn and practice the necessary hygienic habit of washing hands after defecation and before eating.

Coccidioid Granuloma

1. *Recognition of the disease*.—Commencing as a small, slowly extending papule appearing upon some nonhealing trivial wound, the characteristic lesion becomes a pustule which develops into a papillomatous base with many minute abscesses. Soreness and pain accompany the extension of the process. When the lesion develops in the lungs from inhaling spores, the condition resembles pulmonary tuberculosis. Identification of the infecting organism in the fresh discharges, pus, etc., by bacteriological examination and laboratory animal inoculation, confirms the diagnosis.
2. *Etiological agent*.—*Coccidioides immitis*.
3. *Source of infection*.—Soil and vegetation contaminated by discharges and with the spores of the micro-organism.
4. *Mode of transmission*.—Through wounds of the skin smeared with contaminated soil or vegetation. In laboratories the inhalation of spores from dried soil and vegetation.
5. *Incubation period*.—Not determined.
6. *Period of communicability*.—As long as open lesions persist. Direct communication from person to person of little if any importance.
7. *Susceptibility and immunity*.—Susceptibility general when broken skin coincides with exposure to contaminated soil and vegetation. Immunity does not develop after an attack, nor are there means of artificial immunity.
8. *Prevalence*.—Limited to sporadic cases in adult males, regardless of race, almost exclusively in California in North America. No special seasonal distribution. Case fatality nearly 100 percent.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of disease and reporting: Clinical characteristics and bacteriological confirmation.
 2. Isolation: None.
 3. Concurrent disinfection: All discharges from skin lesions of the infected individual, from necrotic lymph nodes, the sputum, and articles soiled with these.

4. Terminal disinfection: Not important.
 5. Quarantine: None; neither contacts nor carriers are known to be spreaders of the disease.
 6. Investigation of source of infection: Not indicated and unprofitable except as a research effort.
- B. General measures: None, other than education of persons generally in California that agricultural workers and laborers should have prompt treatment of skin wounds. Laboratory workers should exercise particular care in handling cultures of the infecting micro-organism and dried material which may contain its spores.

Common Cold

1. *Recognition of the disease.*—An acute catarrhal affection of the upper respiratory tract, usually accompanied by a slight rise of temperature on the first day and chilly sensations with coryza, and general indisposition or lassitude lasting 2 to 7 days.
2. *Etiological agent.*—A filterable virus.
3. *Source of infection.*—Discharges from nose and mouth of infected persons.
4. *Mode of transmission.*—Usually directly by coughing, sneezing, and explosive manner of speech by which droplets are cast out into the air from the infected person to be inhaled by, or impinged on the face of, susceptible persons within short range of 3 feet or so; also by hand to face transfer of discharges, and indirectly by handkerchiefs, eating utensils, or other articles freshly soiled by discharges of the infected person.
5. *Incubation period.*—Probably between 12 and 48 hours; possibly as long as 72 hours.
6. *Period of communicability.*—While the virus remains in the discharges, an undetermined period, but believed to be limited to the early stages of the disease and probable no longer than a week from the onset.
7. *Susceptibility and immunity.*—Susceptibility universal. A period of at least relative immunity follows an attack of the disease and appears to be effective for a month or so.
8. *Prevalence.*—Most persons, except those living in small isolated communities, have one or more colds each year. The incidence does not vary materially according to age, sex, race, or occupation, but incidence appears to be highest in children under 5 years of age.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. On recognition of the premonitory or early stage of a "cold" the infected person should avoid direct and indirect exposure of others, particularly little children, feeble or aged persons, or persons suffering from any other illness.
 2. Isolation: Such modified isolation as can be accomplished by rest in bed for 1 or 2 days is to be advised.
 3. Concurrent disinfection: The disposal of nasal and mouth discharges by the use of soft paper, by burning or putting in the toilet, or otherwise, to avoid contamination of hands and articles of common use, is to be urged.
 4. Terminal disinfection: None, except airing and sunning room and bedding.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Unprofitable except as a research project.
 - B. General measures:
 1. Education in the refinements of personal hygiene and disposal of nose and mouth secretions.
 2. Maintenance of good bodily resistance by regular use of fresh air by day and by night, outdoor exercise, sufficient rest to avoid conscious fatigue, a balanced diet, regular bowel evacuation, and clothing appropriate to climate and use.

Filariasis

1. *Recognition of the disease.*—Inflammatory phenomena, recurrent adenitis, lymphangitis and fever, obstructive manifestations, elephantiasis, varicose lymph glands, superficial lymph varices, hydrocele, lymph scrotum, chyluria, fistula. Discovery of embryos in night blood (microfilariae).

2. *Etiological agent*.—Animal parasite of class Nematoda. Five species are known to infect man; filariasis is usually understood to indicate infection with *Wuchereria bancrofti*. This is the only species reported in the United States.
3. *Source of infection*.—The embryos circulating in the human blood of infected persons.
4. *Mode of transmission*.—By various mosquitoes of which *Culex quinquefasciatus* (United States and West Indies) and *Aedes variegatus* (Western Pacific Islands) are most notorious. Embryo filaria develops to a larva in mosquito. When the mosquito bites, the parasites are deposited on the skin, which they penetrate.
5. *Incubation period*.—A few months to many years.
6. *Period of communicability*.—Fourteen to twenty-one days after larvae have developed in the mosquito and are present in its head and proboscis.
7. *Susceptibility and immunity*.—Everyone frequently exposed to bites of infective mosquitoes. No immunity for persons so exposed. There is no acquired immunity.
8. *Prevalence*.—In the United States limited to Charleston, S. C., to which city the few cases found in the United States have been traced; common in Puerto Rico, Virgin Islands, Samoa, and Philippines, as well as tropical and subtropical parts of Africa, Asia, Oceania, and South America.
9. *Methods of control*:
 - A. The infected individual, contacts and environment:
 1. Recognition of the disease and reporting.
 2. Isolation: Not practicable.
 3. Quarantine: Not practicable.
 4. Immunization: None.
 5. Investigation of source of infection most important. Surveys of incidence and range in endemic foci.
 6. Antimosquito measures against *Culex* mosquitoes, screening of houses, better ventilation and lighting, prevention of overcrowding, protection of local water supplies from mosquitoes.
 - B. General measures: Education of public and sanitarians concerning spread and dangers of infection.

Icterohemorrhagic Jaundice (Weil's Disease)

1. *Recognition of the disease*.—An acute infection characterized by malaise, prostration, and gastro-intestinal symptoms at the onset, followed by fever of varying degree and by jaundice of varying intensity and duration. Severe cases may exhibit bleeding from mucous surfaces and albuminuria. Identification of the *Spirochaeta icterohemorrhagiae* in the urine confirms the diagnosis.
2. *Etiological agent*.—*Spirochaeta icterohemorrhagiae* found in the urine of human cases and in rats.
3. *Source of infection*.—The urine of rats, and articles, particularly food stuffs, contaminated by rats.
4. *Mode of transmission*.—By ingestion of foods which have been contaminated by rat urine or other rat discharges and by contact with moist soil polluted by rat discharges where temperatures are moderate. Infection is not transmitted from man to man.
5. *Incubation period*.—Undetermined, but dependent apparently upon the amount of exposure and the extent of food and soil contamination by rats.
6. *Period of communicability*.—As long as the urine of an infected person contains the infecting micro-organism which may continue for many weeks or several months. The wild rat to the extent of 10 to 40 percent harbors the organism in the kidney and is a persistent carrier.
7. *Susceptibility and immunity*.—Susceptibility is general. Immunity, natural or artificial, is not known to exist.
8. *Prevalence*.—Among rats, widespread and varying from 10 to 40 percent carrier incidence. In man, only where insanitary living conditions and rat infestation occur.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms and identification of the spirochaete in the urine.

2. Isolation: None.
3. Concurrent disinfection: Urine and other discharges of patient.
4. Terminal disinfection: None.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infection: Search for rats harboring the spirochaete and for food stuffs giving evidence of rat contamination.

B. General measures:

1. Suppression of rats by exclusion from food stores and supplies; by rat-proofing; and by poisoning, trapping, etc.
2. Sanitary disposal of human wastes in civil and military environment.
3. Cooking of food if rat contamination has not or cannot be excluded.
4. Wearing shoes in regions where rat contamination of moist warm soil is common.
5. Education in the value of cleanliness in disposal of human wastes and the storing and keeping of foods, and in the matter of washing hands before meals.

Impetigo Contagiosa

1. *Recognition of the disease.*—A pustular dermatitis occurring sporadically and in small epidemics and characterized by vesicular lesions turning to pustules and healing under crusts, commonly on the face and often on the hands, sometimes widely scattered over the body. Bacteriological determination of the infecting micro-organism is of no importance.
2. *Etiological agent.*—A variety of cocci, including commonly streptococci and staphylococci.
3. *Source of infection.*—Lesions on the skin of an infected person.
4. *Mode of transmission.*—By direct contact with the face and hands of an infected person and indirectly by contact with articles recently soiled by the moist discharges of the skin lesions. The infection is easily inoculable from place to place on the patient's body by scratching.
5. *Incubation period.*—Undetermined, but usually within 5 days and often within 2.
6. *Period of communicability.*—While lesions containing pus remain unhealed.
7. *Susceptibility and immunity.*—Susceptibility general, especially among children, and favored by neglected nutrition and bodily uncleanness. Immunity does not follow an attack of the disease. There is no artificial immunity.
8. *Prevalence.*—Common among children living in crowded quarters where personal cleanliness is neglected, especially in warm weather. Sporadic and in epidemic outbreaks in children's institutions and summer camps.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Of importance only to prevent spread in schools and other groups of children, on appearance of the characteristic clinical picture.
 2. Isolation: Exclusion from school and contact with other children or feeble old, or sick persons until pustules are healed.
 3. Concurrent disinfection: Cleanly disposal of dressings and moist discharges from the patient.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Only as a matter of curiosity.
 - B. General measures:
 1. Personal cleanliness, particularly the avoidance of common use of toilet articles among children.
 2. Prompt treatment of the first case in a group of children will abbreviate the period of communicability and prevent extension of lesions to new sites.

Lymphogranuloma Venereum (Inguinale) and Climatic Bubo

1. *Recognition of the disease.*—Adenopathy, inguinal in male, pelvic in female, and history of exposure to venereal infection in tropics (climatic bubo) or in temperate climates. Natural infection limited to human beings, but experimentally transmissible to monkeys and mice, less readily to other species. Characterized by small herpetiform lesion of inoculation on external genitalia or uterine os (rarely in mouth), often transitory, followed by subacute or chronic adenitis and periadenitis, usually with multiple foci of suppuration; associated with constitutional symptoms, fever, prostration, loss of weight, rheumatic affections, and skin reactions. Clinical diagnosis may be confirmed by Frei antigen intradermal test.
2. *Etiological agent.*—A specific filterable virus.
3. *Source of infection.*—Discharges from lesions.
4. *Mode of transmission.*—Direct contact by skin and mucous membranes, almost exclusively in sexual relations with infected persons, or indirectly by articles soiled with discharges from the lesions of such persons.
5. *Incubation period.*—One to four weeks. Glandular enlargement follows the initial lesion in 1 or 2 weeks.
6. *Period of communicability.*—As long as there are open lesions upon skin or mucous membranes.
7. *Susceptibility and immunity.*—Susceptibility appears to be general. Immunity apparently does not follow an attack of the disease. There is no artificial immunity.
8. *Prevalence.*—Has been known for many years as an occasional venereal infection in the Negro quarters of cities in the United States and more commonly in tropical possessions. Is still a rare disease in northern cities and among whites. Widely prevalent in the tropics and common among inmates and clients of brothels in tropical seaports.
2. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms.
 2. Isolation: Exclusion of infected person from sexual contacts and from preparation and serving of food during period of communicability.
 3. Concurrent disinfection: Discharges and articles soiled therewith.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Search should be made for case of origin, particularly among prostitutes and among persons of Negro race, and of former residence in tropical and subtropical areas.
 - B. General measures:
 1. Education in matters of sexual hygiene, particularly as to the fact that continence in both sexes and at all ages is compatible with health and normal development.
 2. Repression of commercial prostitution and associated use of alcoholic beverages by use of police and other competent authority and control of living premises.
 3. Elimination of the use of common towels, cups, toilet articles, and eating utensils.
 4. Exclusion of persons in the communicable state of the disease from participation in the preparing and serving of food.
 5. Personal prophylaxis should be advised and made available for use immediately after sexual intercourse to those who expose themselves to opportunity to infection.

Pediculosis (Lousiness)

1. *Recognition of the condition.*—The discovery of the adult louse on some one or more of the hairy parts of the body or in the clothing, or the nits attached to hairs or to threads of body clothing. Irritation of the skin and adjacent adenitis may result from the scratching which the lousiness incites.
2. *Infesting agent.*—Head louse (*Pediculus capitis*), body louse (*P. vestimentis*), and crab louse (*P. pubis*).

3. *Source of infestation*.—Usually the hairy parts of an infested person or, in the case of *Pediculus vestimenti*, the clothing of such a person.
4. *Mode of transmission*.—Direct contact with an infested person and indirectly by contact with clothing and headgear of such persons.
5. *Incubation period*.—Lice hatch in a week and reach sexual maturity in 2 weeks.
6. *Period of communicability*.—While live lice remain on the infested person or in his clothing, and until eggs (nits) in hair and clothing have been destroyed.
7. *Susceptibility and immunity*.—Neither term appropriate to such a condition as lousiness. All human beings become lousy under suitable conditions of exposure and lack of personal cleanliness.
8. *Prevalence*.—Universal where there is neglect of washing of the person and the body clothing.
9. *Methods of control*:
 - A. The infested individual, contacts, and environment:
 1. Recognition of the state of lousiness by direct inspection of school children for lice and nits and report to school authorities.
 2. Isolation: Exclusion of the infested child from school until live lice are destroyed, and supervision until nits are removed from the hair of the head.
 3. Concurrent disinfection: Such washing of person and treatment of body clothing and toilet articles as will destroy lice and nits.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Investigation of source of infestation: Search for unreported and undetected cases of lousiness among companions, and especially among members of family and household.
 - B. General measures:
 1. Direct inspection of the heads and, when necessary, of the body and clothing where lousiness is found in groups of either children or adults, particularly of children in schools, institutions, and camp groups.
 2. Provision of facilities, medicinal and hygienic, for freeing the persons and clothing of infested individuals and groups of lice and nits.
 3. Education in the value of bodily cleanliness by use of hot water and soap and of washing body clothing in a way to prevent the survival of lice.

Rat-Bite Fever (Sodoku)

1. *Recognition of the disease*.—Usually a history of rat bite within 2 weeks or more; primary edematous lesion; swelling of regional lymph-nodes; short febrile paroxysms alternating with afebrile intervals and accompanied by a rash of broad maculo-papules; presence of causative micro-organism in dark field preparations of blood of white mice, white rats, and guinea pigs inoculated from patient's blood, primary lesion, lymph-nodes, or skin macules, or (less frequently successful) in preparations direct from patient.
2. *Etiological agent*.—*Spirochaeta morsus-muris* (*Spirillum minus*).
3. *Source of infection*.—Usually bite of wild rat; rarely cat, weasel, ferret, dog, or bandicoot.
4. *Mode of transmission*.—During the bite, some of the animal's blood escapes from the injured or diseased buccal mucosa into the wound, or the conjunctival secretion of the rat may contaminate the wound. Blood from an animal in the laboratory may infect man.
5. *Incubation period*.—Four to twenty-five days.
6. *Communicability*.—Not transmitted from man to man.
7. *Susceptibility and immunity*.—No data for man; fatality may reach 10 percent in untreated cases.
8. *Prevalence*.—Distribution is world-wide. Surveys in Calcutta, Bombay, and Tokyo have shown 10 percent of wild rats infected. In the United States less than 100 human cases have been reported up to 1935.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms are more uniformly definite than laboratory confirmation, but latter should always be attempted with thoroughness. Prompt cure by arsphenamines is of diagnostic value.

2. Isolation: None.
 3. Concurrent disinfection: None.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Not practicable except as suggested under General measures.
- B. General measures: Rat surveys and rat eradication. Avoidance of rat bites, especially by not sleeping on or near earthen floors or rat-ridden communities and houses.**

Relapsing Fever

1. *Recognition of the disease.*—Short febrile paroxysms lasting 2 or 3 days alternating with afebrile periods of 3 or 4 days; general macular eruption; presence of causative micro-organism in dark field preparations or stained films from patient's blood taken at height of a febrile paroxysm, or from blood of white mice, white rats, or monkeys inoculated with patient's blood at that time.
2. *Etiological agent.*—*Spirochaeta recurrentis* (*Borrelia recurrentis*) (formerly known as *Spirillum obermeieri*).
3. *Source of infection.*—The tick, *Ornithodoros turicata*, is the one proved source of human infection in the United States, but *O. talaje* is a vector in Panama, Central and South America, while *O. moubata* is the vector in tropical Africa. Lice (*Pediculus vestimenti* and *P. capitis*) are the common vectors in Asia and Europe.
4. *Mode of transmission.*—By tick bite and louse bite.
5. *Incubation period.*—Up to 12 days, the average being 7.
6. *Communicability.*—On the American Continent, only endemic foci are found, and spread from man to man is not apparent. Epidemics in Europe and Africa depend upon overcrowding and heavy infestation with lice and ticks.
7. *Susceptibility and immunity.*—Immunity is only partial. The case fatality for the European variety is about 4 percent. In India and Africa fatalities of 30 to 40 percent have been recorded, but no deaths have been reported for the United States.
8. *Prevalence.*—In the United States, 100 cases have been observed in Texas, 30 in California, and isolated cases in Colorado, Arizona, and New Mexico.
9. *Methods of control:*
 - A. The infected individual, contacts, and environment:
 1. Recognition of the disease and reporting: Clinical symptoms with laboratory confirmation; curative action of arsphenamines also confirmatory.
 2. Isolation: None.
 3. Concurrent disinfection: None.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Important.
 - B. General measures:
 1. Tick and louse eradication.
 2. Avoidance of sleeping in the open or in camps in endemic areas, especially near "dry caves" in Texas.

Ringworm

(Of scalp, body, feet, and groin)

1. *Recognition of the disease.*—Inspection of the scalp and other parts of the body for the characteristics of the local lesion. Identification of the fungus in the scrapings from the edges of the skin areas involved.
2. *Etiological agent.*—Trichophyton, or epidermophyton.
3. *Source of infection.*—Lesions on bodies of infected persons or articles of clothing carrying the fungus or its spores.
4. *Mode of transmission.*—Direct skin-to-skin contact with lesions of infected persons and indirectly by articles of wearing apparel or by surfaces contaminated by scurf or scalings or hair from lesions.
5. *Incubation period.*—Undetermined.

6. *Period of communicability*.—As long as the fungus or its spores can be found at the site of the lesions. Transmission is easy in ordinary conduct of home or recreational pursuits, particularly those carried out indoors.
7. *Susceptibility and immunity*.—Susceptibility general. There is relative immunity to scalp ringworm after 15 years of age.
8. *Prevalence*.—Wide-spread, varying with aggregation of people under conditions appropriate for spread, as at swimming pools. Foot ringworm more common in adults, and the body, face, and head form more so among children, more especially in warm weather.
9. *Methods of control*:
 - A. The infected individual, contacts, and environment:
 1. Recognition of disease and reporting: All cases recognized on inspection of school children should be reported to school authorities.
 2. Isolation: Children and adults with marked cases of the disease should be excluded from privileges in gymnasium and at swimming pools. Exclusion from school may be desirable in cases of ringworm of the scalp. There are too many carriers of foot ringworm to make control of them at all practicable.
 3. Concurrent disinfection: Cleanliness of body and underclothing, especially socks.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Among school children medical inspection should be used to detect unreported cases. In gymnasias and buildings devoted to athletics, particularly swimming, search should be made as a routine, to exclude cases from common facilities.
 - B. General measures:
 1. Cleanliness of body and underclothing.
 2. Prompt and persistent treatment of the lesions should be urged.
 3. Protection of feet against contamination in showers and dressing rooms and areas used by people with bare feet.
 4. The use of disinfecting solutions may prove useful in connection with common bathing and dressing rooms.

Scabies (The Itch)

1. *Recognition of the disease*.—Observation of the characteristic interdigital burrows of the itch mite, its identification under a hand lens, or of the eggs scraped from the burrows.
2. *Etiological agent*.—*Acarus scabiei*, the itch mite.
3. *Source of infestation*.—Persons harboring the itch mite on their skin in burrows, particularly between the fingers.
4. *Mode of transmission*.—Direct contact with infested persons and indirectly by use of underclothing, gloves, bedding, etc., of such persons.
5. *Incubation period*.—Merely the length of time for the itch mite to burrow under the skin and lay eggs and start the itching and scratching, all of which may occur within 24 to 48 hours of original infestation.
6. *Period of communicability*.—Until the itch mites and the eggs are destroyed.
7. *Susceptibility and immunity*.—These terms are not appropriate to this condition. Anyone may become infested and immediately reinfested.
8. *Prevalence*.—Wide-spread and occurring sporadically and in epidemics, especially where there is a low level of bodily cleanliness and neglect of personal and clothing hygiene.
9. *Methods of control*:
 - A. The infested individual, contacts, and environment:
 1. Recognition of the disease and reporting: The condition should be reported to the school authorities if discovered in school children.
 2. Isolation: Children should be excluded from school until disinfested. Persons should be denied common recreation and bathing facilities while infested.
 3. Concurrent disinfection: Care of body clothing and bedding until free from the infestation.
 4. Terminal disinfection: Underclothing and bed covering to be so treated by dry heat or washing to destroy the mite and the eggs.
 5. Quarantine: None.

6. Investigation of source of infestation: Search for unreported or unrecognized cases in companions or house or family mates of the infested individual.

B. General measures: Cleanliness of body and underclothing and bed covering especially.

Schistosomiasis

1. *Recognition of the disease.*—During early stage, remittent fever, urticaria, abdominal pains, chills, anorexia, respiratory symptoms, leucocytosis with eosinophilia. Later diarrhea and dysentery with tenesmus, enlargement and tenderness of the liver, fistula, splenomegaly and ascites. Presence of schistosoma ova in stool. Massive larval infestation may cause acute prostration and high fever.
2. *Etiological agent.*—Animal parasites of the class Trematoda, genus *Schistosoma*. Three species infest man, *S. japonicum* (Far East, including Philippines), *S. hematobium* (Egypt and Africa), *S. mansoni* (Africa, Central and South America, and West Indies, including Puerto Rico and the Virgin Islands). Not indigenous in United States at present.
3. *Source of infestation.*—Waters containing the intermediary molluscan host, contaminated by human excrement containing the ova of the parasite.
4. *Mode of transmission.*—Ova hatch in water and enter mollusc, genus *Planorbis* in the West Indies. In the mollusc they multiply and develop into larval forms called "cercariae", which, on leaving the mollusc, penetrate the skin of man or certain animals.
5. *Incubation period.*—Three to five weeks after exposure to infestation. May be within a few days following massive larval infestation.
6. *Period of communicability.*—As long as the ova are discharged in the stools of infested persons, and as long as the cercariae are to be found in the water.
7. *Susceptibility and immunity.*—All who drink or come in contact with water containing cercariae. Immunity, none.
8. *Prevalence.*—Widely prevalent in the Orient. Varies considerably in different islands in the Pacific and the West Indies. Fairly prevalent in Puerto Rico.
9. *Methods of control:*

A. The infested individual, contacts, and environment:

1. Recognition of the disease by symptomatology, precipitin and complement fixation tests, and microscopical examination of the stools for ova.
2. Isolation: None.
3. Concurrent disinfection: Sanitary disposal of feces.
4. Terminal disinfection: Chemical and other treatment of infested waters to destroy snails.
5. Quarantine: None.
6. Immunization: None.
7. Investigation of source of infestation: In indigenous areas surveys of population to determine range and degree of infestation. Examination of local waters for infested snails.

B. General measures:

1. Regulation of disposal of sewage.
2. Conservation of night soil long enough to sterilize ova through fermentation of medium.
3. Cleansing of banks of infested water supplies to remove snail shelters.
4. Application of lime or copper sulphate to kill infested shelters.
5. Filtration of drinking water from infested sources.
6. Treatment of the infested person by tartar emetic or its derivatives.
7. Education of the people regarding spread and prevention of infestation.

Vincent's Infection (Angina, Stomatitis)

1. *Recognition of the disease.*—When lesions are on the tonsils or pharynx, there is ulcero-membranous inflammation, the exudate being easily removable, leaving raw, bleeding surface, slight fever, pain on swallowing, enlarged, tender cervical lymph nodes. A peculiar redness of the throat is usual. When there is a diffuse gingivitis or stomatitis, the ulceration is less severe, the membrane usually lacking, and the pain and fever less marked. The causative micro-organism can be demonstrated under the microscope.

2. *Etiological agent.*—*Bacillus fusiformis* (Vincent's organism.)
3. *Source of infection.*—Discharges from the lesions of infected persons, and from carriers.
4. *Mode of transmission.*—Direct contact with infected persons or carriers and probably by articles freshly soiled by such persons.
5. *Incubation period.*—Variable and undetermined.
6. *Period of communicability.*—As long as the infecting organism is found in the mouth. Not readily communicable.
7. *Susceptibility and immunity.*—Susceptibility not general, although the stomatitis may be almost universal under conditions of depressed vitality, neglect of oral hygiene, and excessive use of tobacco by men. No immunity known to be acquired.
8. *Prevalence.*—Low incidence. Rather common among persons of low nutrition and neglected diseased teeth, more common in children than in adults under such conditions.
9. *Method of control:*
 - A. Infected individual, contacts and environment:
 1. Recognition of disease and reporting: On clinical manifestations with or without bacteriological confirmation should be reported to school authorities when found among school children, and under conditions of military service should be reported whether as angina or stomatitis.
 2. Isolation: Exclusion from school or common eating facilities unless under active treatment.
 3. Concurrent disinfection: All discharges from mouth and nose.
 4. Terminal disinfection: None.
 5. Quarantine: None.
 6. Immunization: None.
 7. Investigation of source of infection: Inspection of mouths and throats of other children or adults associated with the patient, at home or in school. Carriers are too common to be worth searching for by culture methods.
 - B. General measures:
 1. Encouragement of oral hygiene; correction of abnormal or diseased conditions of teeth.
 2. Facilities for preventive oral treatment of children.
 3. Education in matters of nutrition and hygiene of childhood.

Yaws (Frambesia)

1. *Recognition of the disease.*—The initial lesion in the form of a granuloma or papules, is located extragenitally, usually on the legs, and is often engrafted upon a preexisting wound or ulcer. In from 1 to 3 months, widespread lesions of the skin develop. The first generalized lesion may be in the form of a furfuraceous desquamation as though the skin had been dusted with flour, but soon characteristic raspberry-like lesions appear. Bone and joint pains are common, and bone lesions are frequently observed. The constitutional symptoms are mild and of little diagnostic value. Among the commonest lesions are those of the soles of the feet, giving rise to the condition known as "crab yaws" because of the difficulty and manner of locomotion. The course of the disease is chronic, and relapses are common. The blood Wassermann reaction and related tests become positive soon after the appearance of the initial lesion and remain positive for many years unless affected by treatment.
2. *Etiological agent.*—*Treponema pertenue*.
3. *Source of infection.*—Discharges from skin lesions and mucous membranes.
4. *Mode of transmission.*—Direct contact with lesions of patient and by biting and nonbiting flies which convey the discharges of infected persons to others.
5. *Incubation period.* Three and one-half weeks (experimental) to three or more months.
6. *Period of communicability.*—As long as the lesions are open and there are moist discharges.
7. *Susceptibility and immunity.*—Negroes more commonly susceptible than whites; children and young people more than adults. Recovery from an attack does not result in immunity to reinfection. It is neither congenital nor hereditary.

8. *Prevalence*.—Very common in the tropics, especially in Africa, Polynesia, the Philippines, and some parts of the New World. In the West Indies more prevalent in some villages than others. At present not known as indigenous in continental North America. Especially prevalent in some Caribbean islands (Antigua and other islands of the Leeward group).

9. *Methods of control*:

A. The infected individual, contacts, and environment:

1. Recognition of the disease and reporting.
2. Isolation not practicable.
3. Concurrent disinfection: Protection of all sores and lesions in endemic locality, and disinfection of soiled dressings.
4. Terminal disinfection: None.
5. Quarantine of cases entering noninfected area of tropics.
6. Immunization: None.
7. Investigation of source of infection: In indigenous areas local surveys of incidence should be made, range of prevalence determined, and cases in early stages sought for, especially in children.

B. General measures:

1. Free clinics, laboratory service, and arsenicals for diagnosis and treatment.
2. Information service for physicians, patients, and public.
3. Promotion of adequate personal prophylaxis.
4. Education in schools, clinics, clubs, etc., as to methods of spread, prevention, and treatment.

Supplementary List C

Diseases of concern to health officers because of their group or epidemic occurrence and the practicability of their prevention.

Botulism.

Food infections and poisonings.

Pellagra.

Botulism

1. *Recognition of the disease*.—A disease of intoxication, the symptoms of which develop suddenly with gastro-intestinal pain and evacuations, prostration, and a variety of central nervous system paralyses, the first of which is likely to be an oculo-motor paralysis, all due to the toxin of the particular saprophytic organism. Biological and toxicological tests with laboratory animals may confirm presence of toxin of *B. botulinus* in the food.
2. *Etiological agent*.—The toxin produced by the botulinus bacillus in foods improperly processed.
3. *Source*.—Food usually taken uncooked from cans or jars not subjected to adequate heat of sufficient duration or under sufficient pressure during the processing.
4. *Mode of transmission*.—Only by eating food containing the botulinus toxin.
5. *Incubation period*.—This term does not apply. Symptoms appear almost always within 24 hours after taking the particular food product, the interval being determined by the amount of the poisoned food taken and its botulinus toxin content.
6. *Communicability*.—This term does not apply. The disease is not conveyed from man to man, or among animals or men, except as food containing the botulinus toxin is consumed by them.
7. *Susceptibility and immunity*.—These terms do not apply. The symptoms develop according to the amount of toxin ingested in relation to body weight of the person. There is no immunity, acquired or artificial.
8. *Prevalence*.—Sporadic cases and groups of cases occur in all countries and always in relation to some perishable food product which has been so kept or preserved as to permit the development, under partially anaerobic conditions, of *B. botulinus*, to the extent of forming the toxin that causes the symptoms. In the United States the disease has in recent years followed most commonly the use, without further or adequate cooking, of home-canned vegetable and meat products.

9. *Methods of control:*

1. Governmental control by regulation and inspection of commercial processing of canned and preserved foods.
2. Education of housewives and others concerned with home canning of foods in the essentials of safe processing, as to time, pressure, and temperature factors.
3. Education in value of heating with a small amount of soda, canned green and leafy vegetables before serving, and the thorough cooking of sausage and other meats and fish products held for later consumption.

Food Infections and Poisonings

1. *Recognition of the disease.*—Acute onset, usually with nausea and abdominal pain or distress, with vomiting and diarrhea, prostration, headache, and sometimes fever. Examination of vomitus and feces may reveal the infecting micro-organism, or the poisonous substance.
2. *Etiological agent.*—A variety of organisms, oftenest of the enteritis or salmonella, or staphylococcus groups. A variety of organic and inorganic poisons.
3. *Source of infection.*—Food recently ingested.
4. *Mode of transmission.*—In the case of bacterial poisonings, by the transfer of the particular etiological agent by food handlers to the food ingested. Hands unwashed after use of toilet, or hands or arms with furuncles, boils, or other sores are usual means of conveyance of contamination to foods. Ingestion of foods to which some poisonous substance was accidentally or intentionally added, or in which a natural but poisonous substance occurs, is a direct cause of food poisoning.
5. *Incubation period.*—In the case of bacterial infections may be from 1 to 24 hours after ingestion of food. The symptoms may develop almost immediately, or several hours after ingestion of nonbacterial poisons in the food.
6. *Period of communicability.*—This term does not apply to these conditions.
7. *Susceptibility and immunity.*—These do not apply.
8. *Prevalence.*—Sporadic, but in the main of rather common occurrence, especially in persons taking meals away from home, and in public eating places.
9. *Methods of control:*
 1. All group outbreaks of infections and poisonings attributed to foods should be at once reported to the department of health.
 2. Specimens of the foods suspected should be secured and used for laboratory examination.
 3. The vomitus and feces of patients should be collected for bacteriological and chemical examination.
 4. Persons concerned with the preparation and serving of foods should be brought under observation for medical and bacteriological examination to determine the possible origin, whether from bowel discharges or infections of the skin.
 5. Epidemiological inquiries should include particular study of water and milk used by the persons affected.

Isolation, quarantine, concurrent and terminal disinfection are not applicable in such cases.

Pellagra

1. *Recognition of the disease.*—Pellagra is a constitutional or general disease brought about by lack of protective or preventive substances in the diet, a deficiency disease, preventable by appropriate additions of pellagra preventive substances to the diet, characterized by symmetrical erythematous dermatoses on the exposed parts of the head, neck, and extremities, appearing commonly as the spring and summer advance, by gastro-intestinal disorders, and glossitis and stomatitis, and in the advanced stages, by lethargy, emaciation, and mental confusion and deterioration.
2. *Etiology.*—The cause is believed to be the lack of one or more protective accessory food factors in the diet over a prolonged period of months or years, still not exactly determined but referred to as pellagra-preventive substances.
3. *Source.*—Diets deficient in pellagra-preventive substance.
4. *Transmission.*—Term does not apply. Not communicable but occurring in man and dog from similar dietary deficiencies.

5. *Incubation period.*—Term does not apply. The symptoms rarely appear within 3 months after use of a controlled and artificially deficient diet in man or dogs. History of deficient diet in human cases is usually one of months or years.
6. *Period of communicability.*—Term does not apply.
7. *Susceptibility and immunity.*—Susceptibility is general. No immunity.
8. *Prevalence.*—Occurrence of the disease is rare and sporadic, outside of subtropical areas where chronic poverty, ignorance in food uses, and unavailability of the pellagra-preventive foods prevail. Individual cases and institutional groups of cases in temperate and cold climates can be traced to a particular restriction by choice or necessity in the pellagra-preventive elements of the diet. In the southern States where diets are often seriously deficient in this respect, the incidence of the disease varies with the economic status of individuals and communities.
9. *Methods of control:*
 1. Education in suitable use of pellagra-preventive articles of diet, particularly the leafy green vegetables, fresh milk, and adequate animal protein intake.
 2. Provision of dried brewers' yeast as containing specific pellagra-preventive substance to be distributed by the health or other public authority among persons economically unable to provide pellagra-preventive substance by usual table food.

DEATHS DURING WEEK ENDED JULY 20, 1935

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended July 20, 1935	Correspond- ing week, 1934
Data from 86 large cities of the United States:		
Total deaths.....	7,433	7,332
Deaths per 1,000 population, annual basis.....	10.4	10.2
Deaths under 1 year of age.....	486	544
Deaths under 1 year of age per 1,000 estimated live births.....	45	51
Deaths per 1,000 population, annual basis, first 29 weeks of year.....	12.0	11.9
Data from industrial insurance companies:		
Policies in force.....	67,924,936	67,664,105
Number of death claims.....	11,092	11,468
Death claims per 1,000 policies in force, annual rate.....	8.5	8.8
Death claims per 1,000 policies, first 29 weeks of year, annual rate.....	10.2	10.4

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers

Reports for weeks ended July 27, 1935, and July 28, 1934

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 27, 1935, and July 28, 1934

Division and State	Diphtheria		Influenza		Meas es		Meningococcus meningitis	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
New England States:								
Maine.....			1		75	12	1	1
New Hampshire.....						7	0	0
Vermont.....					32	2	0	0
Massachusetts.....	6	15			105	94	3	1
Rhode Island.....	3	1			53		0	0
Connecticut.....	9				68	32	1	0
Middle Atlantic States:								
New York ¹	8	26	11	11	699	189	11	1
New Jersey.....	8	10	1	5	160	51	3	0
Pennsylvania ²	16	38			242	366	6	7
East North Central States:								
Ohio.....	27	29	5	13	243	226	6	3
Indiana.....	9	12	24	1	20	29	4	0
Illinois.....	25	22	6	7	161	171	6	1
Michigan.....	8	3	4	1	318	61	5	0
Wisconsin.....	3	9	24	5	386	327	1	2
West North Central States:								
Minnesota.....		3	1	2	33	31	1	0
Iowa ³	4	4	1		15	29	4	0
Missouri.....	10	16	13	8	24	30	0	0
North Dakota.....		7			46	24	0	1
South Dakota.....					9	8	0	0
Nebraska.....	1	1			13	4	1	1
Kansas.....	3	20	2	2	50	36	3	1
South Atlantic States:								
Delaware.....	2				13	1	0	0
Maryland ^{4 5}	5	3		1	10	30	0	0
District of Columbia.....	11	2			5	5	4	3
Virginia ¹	16	10			60	107	5	0
West Virginia.....	11	12	16	8	21	40	2	0
North Carolina ¹	13	7	3		12	74	0	1
South Carolina ⁴	2	2	46	38	2	15	0	0
Georgia ⁴	10	9					0	0
Florida ⁴	6	10		3	1	36	0	0

See footnotes at end of table.

*Cases of certain communicable diseases reported by telegraph by State health officers
for weeks ended July 27, 1935, and July 28, 1934—Continued*

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
East South Central States:								
Kentucky.....	3	6			40	35	1	1
Tennessee.....	5	6	18	6		19	1	1
Alabama.....	26	9	3	1	12	81	2	0
Mississippi.....	11	8					0	1
West South Central States:								
Arkansas.....	2	2	3	1	2		0	0
Louisiana.....	14	8	13	3	9	6	1	0
Oklahoma.....	2	2	16		5	2	3	0
Texas.....	35	33	10	26	14	60	2	0
Mountain States:								
Montana.....	4	1	9		15	11	1	0
Idaho.....					2	2	0	0
Wyoming.....	2	1			7	12	0	0
Colorado.....	10	3			12	60	1	0
New Mexico.....	2	3				17	0	0
Arizona.....	2		2		5		0	0
Utah.....		1			5	3	0	0
Pacific States:								
Washington.....	1	2			60	31	0	1
Oregon.....			11	12	46	15	0	0
California.....	19	40	20	10	223	55	7	0
Total.....	354	306	251	155	3,333	2,445	86	27
First 30 weeks of year.....	16,969	19,273	103,251	47,418	690,871	663,397	3,946	1,500

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
New England States:								
Maine.....	0	1	18	11	0	0	0	3
New Hampshire.....	0	1	4	1	0	0	1	0
Vermont.....	0	1	4	2	0	0	0	1
Massachusetts.....	9	8	27	67	0	0	3	3
Rhode Island.....	1	0	2		0	0	0	0
Connecticut.....	5	0	15	9	0	0	2	2
Middle Atlantic States:								
New York.....	44	9	151	112	0	0	8	19
New Jersey.....	5	2		27	0	0	2	13
Pennsylvania.....	4	2	141	106	0	0	15	21
East North Central States:								
Ohio.....	6	7	65	110	0	0	22	28
Indiana.....	2	2	30	14	2	0	15	21
Illinois.....	4	7	153	80	0	0	29	61
Michigan.....	8	4	65	52	0	0	15	12
Wisconsin.....	1	1	75	42	1	22	1	7
West North Central States:								
Minnesota.....	0	1	36	19	1	3	24	1
Iowa.....	1	1	26	17	5	1	2	2
Missouri.....	0	1	18	27	0	1	25	66
North Dakota.....	0	0	7	9	0	1	4	1
South Dakota.....	0	3	6	1	2	1	0	2
Nebraska.....	0	2	10	4	5	0	0	2
Kansas.....	2	2	18	16	2	1	26	29
South Atlantic States:								
Delaware.....	0	0	1		0	0	0	0
Maryland.....	2	1	14	12	0	0	12	15
District of Columbia.....	6	0	6	2	0	0	6	3
Virginia.....	87	0	18	19	0	0	36	39
West Virginia.....	0	3	17	19	0	0	22	23
North Carolina.....	52	1	17	15	1	0	46	33

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended July 27, 1935, and July 28, 1934—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934	Week ended July 27, 1935	Week ended July 28, 1934
South Atlantic States—Continued.								
South Carolina ¹	6	1	3	4	0	0	25	31
Georgia ¹	2	1	6	3	0	0	33	69
Florida ¹	1	0	4	-----	0	0	5	2
East South Central States:								
Kentucky.....	10	10	17	18	0	0	37	39
Tennessee.....	9	1	10	7	0	0	44	74
Alabama ¹	4	2	8	7	0	0	31	47
Mississippi ¹	2	0	8	5	0	0	16	26
West South Central States:								
Arkansas.....	0	0	2	-----	2	0	29	37
Louisiana.....	1	0	5	4	0	0	27	34
Oklahoma ¹	0	0	11	10	0	0	41	33
Texas ¹	1	5	14	20	3	0	31	86
Mountain States:								
Montana ¹	0	2	-----	1	3	1	3	0
Idaho.....	0	13	1	4	1	0	0	0
Wyoming ¹	0	1	19	3	9	0	0	0
Colorado ¹	0	1	20	18	0	0	1	9
New Mexico.....	1	3	4	5	0	0	14	6
Arizona.....	0	1	1	-----	0	0	0	1
Utah ¹	1	1	14	9	0	0	0	2
Pacific States:								
Washington.....	0	34	10	17	14	8	3	11
Oregon.....	0	1	17	16	3	5	3	6
California ¹	21	120	93	76	1	0	10	11
Total.....	298	257	1,211	1,029	55	44	669	931
First 30 weeks of year.....	1,897	3,180	177,648	145,411	5,221	3,686	6,965	8,255

¹ New York City only.

² Rocky Mountain spotted fever, week ended July 27, 1935, 24 cases, as follows: New York, 1; Pennsylvania, 1; Iowa, 2; Maryland, 1; Virginia, 5; North Carolina, 3; Montana, 3; Wyoming, 6; Colorado, 1; California, 1.

³ Week ended earlier than Saturday.

⁴ Typhus fever, week ended July 27, 1935, 29 cases, as follows: Maryland, 1; South Carolina, 1; Georgia, 12; Florida, 2; Alabama, 9; Texas, 4.

⁵ Exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Menin- gococ- cus menin- git's	Diph- theria	Influ- enza	Malaria	Measles	Pel- lagra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid fever
June 1935										
Alabama.....	6	38	98	897	335	148	10	30	2	94
Arizona.....	2	8	15	1	50	-----	1	78	0	16
Montana.....	1	11	36	-----	635	-----	2	47	13	8
New York.....	96	139	-----	8	11,258	-----	23	2,709	0	39
Oklahoma.....	9	22	138	106	165	51	1	31	4	38
South Dakota.....	-----	9	1	-----	93	-----	1	33	70	0
Washington.....	9	2	24	-----	1,299	-----	-----	141	123	13

¹ Exclusive of Oklahoma City and Tulsa.

June 1935		June 1935—Continued		June 1935—Continued	
	Cases		Cases		Cases
Anthrax:		Mumps:		Tetanus:	
South Dakota.....	1	Alabama.....	85	Alabama.....	6
Chicken pox:		Arizona.....	96	New York.....	3
Alabama.....	44	Montana.....	120	Oklahoma ¹	1
Arizona.....	67	Oklahoma ¹	39	Tick paralysis:	
Montana.....	84	South Dakota.....	47	Washington.....	1
New York.....	2,381	Washington.....	241	Trachoma:	
Oklahoma ¹	12	Ophthalmia neonatorum:		Alabama.....	3
South Dakota.....	21	Alabama.....	1	Arizona.....	30
Washington.....	387	New York.....	8	Montana.....	11
Dengue:		Paratyphoid fever:		Oklahoma ¹	3
Alabama.....	8	New York.....	3	Trichinosis:	
Dysentery:		Puerperal septicemia:		New York.....	24
Alabama (amebic).....	6	Montana.....	1	Tularaemia:	
Arizona (bacillary).....	7	Rabies in animals:		Montana.....	3
New York (amebic).....	2	Alabama.....	59	Typhus fever:	
New York (bacillary).....	11	New York ¹	1	Alabama.....	34
Oklahoma ¹	34	Washington.....	4	Undulant fever:	
Washington (amebic).....	1	Rabies in man:		Alabama.....	5
Epidemic encephalitis:		Washington.....	1	Arizona.....	1
Alabama.....	5	Rocky Mountain spotted		Montana.....	1
Montana.....	1	fever:		New York.....	33
New York.....	13	Montana.....	38	South Dakota.....	1
German measles:		South Dakota.....	4	Washington.....	3
Arizona.....	22	Washington.....	1	Vincent's infection:	
Montana.....	168	Scabies:		New York ¹	63
New York.....	10,446	Montana.....	3	Washington.....	2
Washington.....	508	Septic sore throat:		Whooping cough:	
Hookworm disease:		Montana.....	13	Alabama.....	145
Arizona.....	1	New York.....	57	Arizona.....	84
Impetigo contagiosa:		Oklahoma ¹	25	Montana.....	192
Montana.....	4	Washington.....	1	New York.....	1,697
South Dakota.....	1			Oklahoma ¹	103
				South Dakota.....	46
				Washington.....	87

PLAGUE-INFECTED GROUND SQUIRRELS IN GRANT AND WALLOWA COUNTIES, OREG., AND BEAVERHEAD COUNTY, MONT.

Of 5 ground squirrels received at the San Francisco laboratory July 12 and 16, 1935 (3 *Citellus columbianus* and 2 *Citellus oregonus*), 4 were proved positive for plague on July 22 and 23, and positive proof in the other, *Citellus oregonus*, appeared imminent. One lot of 7 squirrels taken in the vicinity of Fox Creek, Grant County, Oreg., was proved positive on July 24, as was also 1 ground squirrel received on July 19 from Dillon, Beaverhead County, Mont.

¹ Exclusive of Oklahoma City and Tulsa.

² Exclusive of New York City.

WEEKLY REPORTS FROM CITIES

City reports for week ended July 20, 1935

This table summarizes the reports received regularly from a selected list of 125 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table. Weekly reports are received from about 700 cities, from which the data are tabulated and filed for reference.

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Maine:											
Portland.....	0		0	0	0	0	0	0	0	3	22
New Hampshire:											
Concord.....	0		0	0	0	0	0	0	0	0	10
Manchester.....			0		3			0			19
Nashua.....	0			0		0	0		0	0	
Vermont:											
Barre.....											
Burlington.....	0		0	1	0	0	0	0	0	0	7
Rutland.....	0		0	1	0	2		1	0	8	4
Massachusetts:											
Boston.....	3		0	25	14	11	0	14	1	13	195
Fall River.....	0		0	0	4	1	0	3	0	1	36
Springfield.....	1		0	1	0	2	0	0	0	0	26
Worcester.....	0		0	0	4	9	0	1	0	1	38
Rhode Island:											
Pawtucket.....	0			0		0	0		0	0	10
Providence.....	0		0	69	5	7	0	2	0	18	50
Connecticut:											
Bridgeport.....	0		0	5	2	2	0	0	0	0	27
Hartford.....	0		0	1	2	0	0	0	0	16	40
New Haven.....	0		0	0	0	0	0	0	0	2	35
New York:											
Buffalo.....	0		0	7	14	15	0	6	0	23	126
New York.....	15		0	387	60	45	0	88	11	115	1,361
Rochester.....	0		0	9	0	2	0	1	1	8	57
Syracuse.....	0		0	163	1	6	0	0	0	23	40
New Jersey:											
Camden.....	0		0	0	0	0	0	0	0	2	33
Newark.....	0		0	33	4	8	0	8	0	42	92
Trenton.....	0		0	0	2	1	0	2	0	0	26
Pennsylvania:											
Philadelphia.....	0		2	19	17	23	0	12	4	50	440
Pittsburgh.....	1	1	2	14	7	12	0	13	1	32	130
Reading.....	0		0	9	1	1	0	0	0	2	29
Scranton.....	1			2		0			0	3	
Ohio:											
Cincinnati.....	0		0	1	5	2	0	4	0	6	128
Cleveland.....	6	1	0	78	8	7	0	18	2	63	175
Columbus.....	0		0	2	0	0	0	12	0	3	103
Toledo.....	1		0	14	2	2	0	2	0	6	60
Indiana:											
Anderson.....	0		0	0	0	0	0	1	0	0	10
Fort Wayne.....	2		0	0	3	1	0	0	0	1	29
Indianapolis.....	0		0	12	6	1	0	4	1	10	82
Muncie.....	0		0	0	3	1	0	0	0	0	11
South Bend.....	0		0	0	1	0	0	0	0	1	16
Terre Haute.....	0		0	1	0	0	0	0	0	0	26
Illinois:											
Alton.....	0		0	0	0	0	0	0	0	0	6
Chicago.....	11		1	96	24	82	0	49	0	137	585
Elgin.....	0		0	0	0	0	0	0	0	5	4
Moline.....	0		0	0	0	1	0	0	1	5	5
Springfield.....	0		1	0	1	1	0	0	0	6	18
Michigan:											
Detroit.....	5	4	1	21	10	15	0	15	1	143	244
Flint.....	0		0	1	2	1	0	0	0	14	21
Grand Rapids.....	0		0	7	1	6	0	0	0	22	27
Wisconsin:											
Kenosha.....	0		0	0	0	0	0	0	0	2	8
Milwaukee.....	0		0	179	3	16	0	2	0	42	83
Racine.....	0		0	15	0	7	0	0	0	20	10
Superior.....	0		0	2	0	0	0	0	0	10	5
Minnesota:											
Duluth.....	0		0	0	1	1	0	0	0	6	13
Minneapolis.....	3		0	4	4	12	0	3	18	4	79
St. Paul.....	0		0	5	1	6	0	2	2	5	52

City reports for week ended July 20, 1935—Continued

State and city	Diph- theria cases	Influenza		Meas- les cases	Pneu- monia deaths	Scar- let fever cases	Small- pox cases	Tuber- culosis deaths	Ty- phoid fever cases	Whoop- ing cough cases	Deaths, all causes
		Cases	Deaths								
Iowa:											
Cedar Rapids.....	0			0		0	0		0	2	
Davenport.....	1			0		0	0		0	0	
Des Moines.....	0			0		0	0		0	0	27
Sioux City.....	0			5		0	0		0	7	
Waterloo.....				0		1	1		1	2	
Missouri:											
Kansas City.....	4		0	1	3	2	0	6	1	0	78
St. Joseph.....	0		0	8	0	0	0	0	0	0	34
St. Louis.....	5		0	3	2	2	0	10	6	13	171
North Dakota:											
Fargo.....	0		1	2	0	3	0	0	0	0	4
Grand Forks.....	0			0		0	0		0	4	
Minot.....	0			0		0	0		0	1	7
South Dakota:											
Aberdeen.....	0			0		0	0		0	1	
Nebraska:											
Omaha.....	2		0	1	4	1	0	7	0	1	55
Kansas:											
Lawrence.....	0			1		0	0		0	0	
Topeka.....	0		0	0	4	0	0	0	0	11	15
Wichita.....	0		0	2	2	1	0	1	4	6	25
Delaware:											
Wilmington.....	0		0	0	0	0	0	0	0	0	26
Maryland:											
Baltimore.....	3	2	0	0	9	9	0	9	4	33	188
Cumberland.....	0		0	1	0	0	0	1	0	0	9
Frederick.....	0		0	0	0	0	0	0	1	0	3
Dist. of Columbia:											
Washington.....	10	1	0	5	4	3	0	8	1	1	142
Virginia:											
Lynchburg.....	0		0	0	0	0	0	0	4	21	13
Richmond.....	0		0	2	3	1	0	7	0	0	65
Roanoke.....	0		0	1	0	0	0	1	1	1	15
West Virginia:											
Charleston.....	1			0		0	0		1	0	1
Huntington.....	0			0		0	0		3	0	
Wheeling.....	1		0	3	1	1	0	0	0	3	14
North Carolina:											
Gastonia.....	1			0		0	0		0	0	3
Raleigh.....	2		0	0	0	0	0	0	3	1	6
Wilmington.....	0		0	0	3	0	0	0	0	3	14
Winston-Salem.....	0		0	0	0	0	0	0	0	0	7
South Carolina:											
Charleston.....	0		0	0	1	0	0	2	1	0	23
Columbia.....	0		0	0	0	0	0	0	0	0	6
Florence.....	0		0	0	0	0	0	0	0	1	11
Greenville.....			0		3			2			18
Georgia:											
Atlanta.....	8	2	0	1	1	0	0	1	2	19	77
Brunswick.....	0		0	0	0	0	0	0	0	0	2
Savannah.....	0	2	0	2	0	0	0	0	2	1	27
Florida:											
Miami.....	0		0	0	1	0	0	1	1	0	26
Tampa.....	0		0	0	0	0	0	1	0	0	21
Kentucky:											
Ashland.....											
Covington.....	0			0		0	0		0	0	
Lexington.....	0		0	0	2	0	0	3	0	1	21
Louisville.....	1		0	1	3	4	0	3	0	34	40
Tennessee:											
Knoxville.....	1		0	3	0	3	0	1	2	0	23
Memphis.....	0		0	0	1	5	0	6	3	10	74
Nashville.....	0		2	0	2	1	0	4	0	5	50
Alabama:											
Birmingham.....	1		0	0	2	1	0	4	0	0	61
Mobile.....	0		0	0	0	1	0	1	1	0	20
Montgomery.....	0			0		0	0		0	0	
Arkansas:											
Fort Smith.....	0			0		1	0		1	1	
Little Rock.....	0		0		3	0	0	2	0	1	7
Louisiana:											
New Orleans.....	0		1	0	11	0	0	8	0	0	148
Shreveport.....	3		1	0	2	0	0	1	0	2	47

City reports for week ended July 20, 1935—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Small-pox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all cause
		Cases	Deaths								
Texas:											
Dallas.....	5	—	0	0	5	3	2	3	0	3	55
Fort Worth.....	0	—	0	0	0	0	0	2	3	0	21
Galveston.....	1	—	0	0	0	0	0	1	1	0	20
Houston.....	4	—	0	0	5	1	0	11	0	0	77
San Antonio.....	4	—	1	0	1	1	0	7	0	4	67
Montana:											
Billings.....	0	—	0	0	1	0	0	0	0	0	8
Great Falls.....	0	—	0	0	0	0	0	0	0	8	12
Helena.....	0	—	0	1	0	0	0	0	0	0	3
Missoula.....	1	—	0	0	0	0	0	0	0	0	4
Idaho:											
Boise.....	1	—	0	0	0	2	0	0	0	0	5
Colorado:											
Colorado Springs.....	0	—	0	0	0	4	0	1	0	1	8
Denver.....	7	—	0	19	2	8	0	6	0	0	63
Pueblo.....	0	—	0	3	1	2	0	0	0	0	8
New Mexico:											
Albuquerque.....	0	—	0	1	0	0	0	5	1	0	12
Utah:											
Salt Lake City.....	0	—	0	0	3	26	0	1	0	44	31
Nevada:											
Reno.....	0	—	0	0	0	0	0	0	0	0	1
Washington:											
Seattle.....	0	—	2	42	3	1	0	5	0	2	93
Spokane.....	0	—	0	6	1	2	0	1	0	9	25
Tacoma.....	0	—	0	0	0	0	1	1	0	0	20
Oregon:											
Portland.....	2	—	1	10	4	3	0	2	0	1	85
Salem.....	0	—	0	0	0	0	0	0	0	1	—
California:											
Los Angeles.....	11	8	0	32	13	12	1	20	0	9	215
Sacramento.....	2	—	0	12	2	5	0	1	0	0	27
San Francisco.....	0	—	1	48	4	6	0	5	0	17	136

State and city	Meningococcus meningitis		Polio-myelitis cases	State and city	Meningococcus meningitis		Polio-myelitis cases
	Cases	Deaths			Cases	Deaths	
New Hampshire:				Delaware:			
Concord.....	0	0	1	Wilmington.....	1	0	1
Massachusetts:				Maryland:			
Boston.....	1	1	9	Baltimore.....	2	2	0
Fall River.....	0	0	2	District of Columbia:			
Connecticut:				Washington.....	2	2	1
Bridgeport.....	0	0	1	Virginia:			
New York:				Lynchburg.....	1	0	4
New York.....	2	2	15	Richmond.....	0	0	16
Rochester.....	1	0	0	Roanoke.....	0	0	2
New Jersey:				West Virginia:			
Camden.....	0	0	1	Wheeling.....	1	0	0
Newark.....	0	0	1	North Carolina:			
Pennsylvania:				Raleigh.....	0	0	1
Philadelphia.....	2	0	1	South Carolina:			
Ohio:				Charleston.....	0	0	1
Cincinnati.....	1	1	0	Tennessee:			
Cleveland.....	3	0	0	Knoxville.....	1	0	0
Illinois:				Alabama:			
Alton.....	1	0	0	Montgomery.....	0	0	1
Chicago.....	4	2	1	Arkansas:			
Springfield.....	1	0	0	Little Rock.....	0	1	0
Michigan:				Colorado:			
Detroit.....	0	1	4	Denver.....	1	0	0
Wisconsin:				Oregon:			
Racine.....	0	0	1	Portland.....	1	0	1
Iowa:				California:			
Des Moines.....	1	0	0	Los Angeles.....	0	0	11
Missouri:							
St. Louis.....	0	0	1				

Epidemic encephalitis.—Cases: New York, 2; Pittsburgh, 2; Cleveland, 1; St. Louis, 1; Baltimore, 1; Colorado Springs, 1.

Pellagra.—Cases: Philadelphia, 2; Atlanta, 2; Savannah, 2; Birmingham, 1; San Francisco, 1.

Rabies in man.—Memphis, 1 death.

Typhus fever.—Cases: Kansas City, Mo., 1; Charleston, S. C., 1; Savannah, 2; Montgomery, Ala., 6.

FOREIGN AND INSULAR

CUBA

Habana—Communicable diseases—4 weeks ended July 6, 1935.—During the 4 weeks ended July 6, 1935, certain communicable diseases were reported in Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Diphtheria.....	1	—	Scarlet fever.....	1	—
Malaria.....	1 20	1	Tuberculosis.....	29	4
Poliomyelitis.....	1 2	—	Typhoid fever.....	1 18	4

¹ Includes imported cases.

CZECHOSLOVAKIA

Communicable diseases—May 1935.—During the month of May 1935, certain communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	3	—	Paratyphoid fever.....	9	—
Cerebrospinal meningitis.....	21	6	Poliomyelitis.....	4	—
Chicken pox.....	168	—	Puerperal fever.....	44	25
Diphtheria.....	1, 656	105	Scarlet fever.....	1, 776	22
Dysentery.....	9	3	Trachoma.....	87	—
Influenza.....	806	26	Typhoid fever.....	218	22
Malaria.....	209	—	Typhus fever.....	8	—

FEDERATED MALAY STATES

Vital statistics—1934.—The following vital statistics for the Federated Malay States for 1934 are taken from the report of the registrar general of births and deaths:

Population.....	1, 631, 728	Deaths from—	
Births.....	57, 607	Dysentery.....	387
Births per 1,000 population.....	35. 4	Heart disease.....	659
Deaths.....	34, 985	Influenza.....	40
Deaths per 1,000 population.....	21. 4	Leprosy.....	11
Deaths under 1 year of age.....	9, 376	Malaria.....	761
Deaths under 1 year per 1,000 live births.....	163	Pneumonia.....	1, 763
Deaths from—		Syphilis.....	128
Ankylostomiasis.....	83	Tetanus.....	99
Beriberi.....	340	Tuberculosis (all forms).....	1, 394
Cancer.....	185	Typhoid fever.....	46
Cerebrospinal fever.....	2	Typhus fever (tropical).....	17
Diarrhea and enteritis.....	1, 005	Violence.....	698
Diphtheria.....	82		

ITALY

Vital statistics—1934.—Following are vital statistics for Italy for 1934, as published in the Sanitary Bulletin:

Number of deaths.....	563, 342	Deaths per 1,000,000 inhabitants from—	
Deaths per 1,000 inhabitants.....	13. 28	Measles.....	82
Infant mortality per 1,000 live births.....	98. 7	Scarlet fever.....	23
Deaths per 1,000,000 inhabitants from—		Tuberculosis (all forms).....	924
Diphtheria.....	67	Tumor, malignant.....	807
Malaria.....	53	Typhoid fever.....	115

YUGOSLAVIA

Communicable diseases—June 1935.—During the month of June 1935, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	67	10	Paratyphoid fever.....	13	1
Cerebrospinal meningitis.....	12	2	Scarlet fever.....	223	2
Diphtheria and croup.....	360	32	Sepsis.....	7	6
Dysentery.....	33	2	Tetanus.....	62	29
Erysipelas.....	133	6	Typhoid fever.....	169	13
Influenza.....	7	—	Typhus fever.....	131	11
Measles.....	769	9			

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

(NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for July 26, 1935, pp. 967-983. A similar cumulative table will appear in the PUBLIC HEALTH REPORTS to be issued Aug. 30, 1935, and thereafter, at least for the time being, in the issue published on the last Friday of each month.)

Cholera

Siam—Kanchanapuri Province.—For the period April 20 to July 9, 1935, 98 cases of cholera have been reported in the Province of Kanchanapuri, Siam.

Plague

Brazil—Pernambuco State.—According to a report dated Aug. 5, 1935, there have been 48 known cases of bubonic plague, with 14 deaths, in the towns of Novo Exu and Granito, Pernambuco State, Brazil.

Hawaii Territory—Island of Hawaii—Hamakua District—Kalopa.—Three plague-infected rats, 2 on July 19, 1935, and 1 on July 20, 1935, have been reported at Kalopa, Hamakua District, Island of Hawaii, Hawaii Territory.

United States.—A report of plague-infected ground squirrels in Montana and Oregon appears on page 1081 of this issue of Public Health Reports.

Typhus fever

China—Manchuria—Harbin.—According to unofficial reports there were at least 400 cases of typhus fever in Harbin, Manchuria, China, up to June 25, 1935.

Hawaii Territory—Honolulu.—During the week ended July 6, 1935, 1 case of typhus fever was reported at Honolulu, Hawaii Territory.